

White, E.  
09/160133

09/160133

FILE 'REGISTRY' ENTERED AT 16:44:32 ON 04 MAR 1999

E MALTITOL/CN 5

L1 1 SEA ABB=ON PLU=ON MALTITOL/CN

key terms  
Claims 1, 2, 4, 5  
# 7

FILE 'CAPLUS' ENTERED AT 16:44:40 ON 04 MAR 1999

L2 47 SEA ABB=ON PLU=ON (L1 OR MALTITOL) (S) CRYST?

L3 0 SEA ABB=ON PLU=ON L2 AND (PRISM? OR BIPYRAM? OR PYRAM?  
OR TETRAHEDRON? OR TETRA HEDRON?)

=> d his 14- ful

(FILE 'MEDLINE, BIOSIS, EMBASE, LIFESCI, BIOTECHDS, WPIDS, CONFSCI,  
JICST-EPLUS, PROMT, SCISEARCH, CBNB, CIN, CEN' ENTERED AT 16:47:07  
ON 04 MAR 1999)

L4 103 SEA ABB=ON PLU=ON L2

L5 0 SEA ABB=ON PLU=ON L4 AND (PRISM? OR BIPYRAM? OR PYRAM?  
OR TETRAHEDRON? OR TETRA HEDRON?)

=> d his 16

(FILE 'CAPLUS' ENTERED AT 16:48:45 ON 04 MAR 1999)

L6 28 S L2(S) (MANUF? OR PROD? OR PREP?)

Claims 3, 6,  
8 & 9

=> d 1-28 .bevstr

L6 ANSWER 1 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1998:59377 CAPLUS

DN 128:140963

TI **Preparation of maltitol crystals and  
its crystal-containing sugar crystals at any  
ratio**

IN Yoneda, Susumu; Tachino, Yoshiaki; Makara, Mitsuo; Okamoto, Naoki

PA Towa Kasei Kogyo Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10017589	A2	19980120	JP 96-194099	19960705
	AU 9728349	A1	19980115	AU 97-28349	19970627
	EP 816373	A1	19980107	EP 97-110882	19970702
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRAI JP 96-194099 19960705

AB **Maltitol (I) crystals and its crystal**

-contg. crystals, useful as sweeteners, are prepd

. by (A) catalytic hydrogenation of syrups contg. 40-75 wt.% (as

Searcher : Shears 308-4994

solid) maltose, (B) applying the resulting sugar alc. syrups to cation exchanger-packed column to sep. sorbitol-rich fraction, syrups contg. 80.5-86.5 wt.% I, and polyol (d.p. .gtoreq.3) fraction, (C) applying the I-rich syrups again similarly to cation exchanger-packed column, (D) concg. and **crystg.** (portion of) the resulting syrups contg. .gtoreq.97.5% I, and (E) spray drying the mother liqs. (and the rest of the syrups) contg. .gtoreq.90% I in presence of seed **crystals** or kneading them with seed **crystals** under cooling. In the process D, the **crystn.** step can be omitted. A syrup contg. 67.3% maltose was continuously hydrogenated over Raney Ni at 150 kg/cm<sup>2</sup> H, purified by using a sulfonic acid-type cation exchanger, and a fraction contg. 98.2% I was concd. and **crystd.** The mother liq. was kneaded with seed crystals to give crystals contg. 96.0% I.

IT 585-88-6P, Maltitol

RL: FFD (Food or feed use); IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(prepn. of maltitol crystals from maltose-contg. syrups)

L6 ANSWER 2 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1997:449576 CAPLUS

DN 127:67592

TI Method for manufacture of free-flowing mixed powder of sugar and maltitol

IN Niimi, Masahiro; Niimi, Fumie; Kato, Kazuaki

PA Towa Kasei Kogyo Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, '6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09121900	A2	19970513	JP 95-302270	19951027

AB The mixed powder is **prepd.** by steps of: (1) sep. **prepg.** a massecuities (M1) of maltitol having slurry **crystal** content 5-50% from a 70-90% solids aq. soln. of maltitol of 85-99.9% purity and a massecuities (M2) of sugar, and (2) spray drying with hot air at 30-90.degree. under a M1 feed of 10-21% and M2 feed of 79-90%. The mixt. is useful as low-calorie sweetener.

L6 ANSWER 3 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1997:416968 CAPLUS

DN 127:34466

TI Method for the preparation of a mixture of ascorbic acid and maltitol with fluid properties

Searcher : Shears 308-4994

IN Niimi, Masahiro; Niimi, Fumie; Kato, Kazuaki  
 PA Towa Kasei Kogyo Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09157285	A2	19970617	JP 95-344312	19951206
AB	<p>The title method comprises the <b>prepn.</b> of suspensions of ascorbic acid and <b>maltitol crystals</b> in water and the drying of a mixt. of said suspensions. In an example, the title <b>prepn.</b> comprises (a) cooling an aq. soln. of ascorbic acid to 15.degree. and stirring said soln. at 15.degree. for 5 h to give a suspension of ascorbic acid <b>crystals</b> in water; (b) cooling an aq. soln. of <b>maltitol</b> to 15.degree. and stirring said soln. at 15.degree. for 10 h to give a suspension of <b>maltitol crystals</b> in water; (c) sending the suspensions obtained in steps (a) and (b) to a dryer at 70.degree. to dry the mixt. and give a mixt. of ascorbic acid and <b>maltitol</b> with fluid properties.</p>				

L6 ANSWER 4 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1997:389162 CAPLUS  
 DN 127:34465  
 TI Method for the **preparation of crystalline maltitol**

IN Yamazaki, Fumito; Shimazu, Koshiro; Tatenno, Yoshiaki; Magara, Mitsuo; Okamoto, Naoki  
 PA Towa Kasei Kogyo Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09132587	A2	19970520	JP 95-313721	19951108
AB	<p>The title method involves (a) continuous hydrogenation of a maltose syrup; (b) supplying the <b>product</b> to a cation exchange resin tower for sepn. of the <b>maltitol-contg.</b> syrup; (c) continuous <b>crystn.</b> of <b>maltitol</b>. The title method gives pure maltitol at low cost.</p>				
IT	<p><b>585-88-6P, Maltitol</b>            RL: IMF (Industrial manufacture); PUR (Purification or recovery);            SPN (Synthetic preparation); PREP (Preparation)            (method for the <b>prepn.</b> of <b>cryst.</b> <b>maltitol</b>)</p>				

Searcher : Shears 308-4994

L6 ANSWER 5 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1997:342430 CAPLUS  
 DN 127:33235  
 TI Method for producing maltitol powder of high fluidity  
 IN Niimi, Masahiro; Niimi, Fumie; Kato, Kazuaki  
 PA Towa Kasei Kogyo Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09110891	A2	19970428	JP 95-297317	19951023
AB	<p>Maltitol powder, which shows 25-37.degree. rest angle for 20-50 mesh powder after it is stored at 25.degree. and 50% humidity for 2 days, is manufd. by sequentially carrying out 3 steps: (1) prepg. a maltitol mass kit contg. 10-50 wt.% suspended crystals from a 70-90 wt.% aq. soln. of maltitol of 85-99.9 wt.% purity, (2) introducing the maltitol mass kit into a spray dryer (wind temp. being set at 30-80.degree.) and spray-drying it to obtain a maltitol powder of 2-7 wt.% H2O content, and (3) aging the obtained maltitol powder at 25-65.degree.. This process gives maltitol powder of high fluidity and low moisture absorbability, which is useful as a material for food (e.g. a sweetening agent), drugs, and cosmetics.</p>				
IT	<p>585-88-6, Maltitol          RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)          (prepn. of maltitol powder of high fluidity by spray-drying aq. maltitol contg. suspended maltitol crystals as sweetening agent)</p>				

L6 ANSWER 6 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1997:764 CAPLUS  
 DN 126:104361  
 TI Process for preparing crystalline mixture solid containing maltitol  
 IN Kawashima, Shigeru; Magara, Mitsuo; Ishii, Yoshibumi; Kato, Kazuaki  
 PA Towa Chemical Industry Co., Ltd., Japan  
 SO U.S., 10 pp. Cont.-in-part of U.S. 5,354,856.  
 CODEN: USXXAM  
 DT Patent  
 LA English

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
<p>Searcher : Shears 308-4994</p>				



09/160133

PI US 5583215 A 19961210 US 94-280813 19940726  
JP 08280400 A2 19961029 JP 96-48453 19910523  
US 5354856 A 19941011 US 92-836017 19920224

PRAI JP 90-164148 19900625  
JP 91-53211 19910226  
US 92-836017 19920224  
JP 91-509213 19910523  
WO 91-JP690 19910523

AB The **cryst.** mixt. solid contg. **maltitol** of the present invention has a crushed and relatively tight **crystal** structure which can be obsd. at 1,000 magnifications by a scanning electron microscope, an apparent sp. gr. in the range of 0.650-0.750, an oil absorptivity of the powd. **cryst.** mixt. solid contg. **maltitol** having a particle size from 50 mesh to 20 mesh in the range of 7.0%-17%, in other words, is relatively heavy in apparent sp. gr. and low in oil absorptivity, and the **cryst.** mixt. solid contg. **maltitol** is **prepd.** by continuously supplying an aq. soln. of **maltitol** to an extruder provided with elongated cooling and kneading zones, cooling and kneading it in the presence of seed **crystals** to form a **maltitol** magma, and continuously extruded from a nozzle.

IT 585-88-6, Maltitol  
RL: PRP (Properties)  
(process for **prepg.** **cryst.** mixt. solid contg. **maltitol**)

L6 ANSWER 7 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1996:758940 CAPLUS  
DN 126:19168

TI A process for **manufacturing crystalline maltitol** and **crystalline** mixture solid containing the same

IN Magara, Mitsuo; Kataura, Koichi; Tateno, Yoshiaki; Onuki, Yoshimasa; Osada, Yuji; Yamazaki, Fumito; Kato, Kazuaki

PA Towa Chemical Industry Co., Ltd., Japan

SO Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 741140	A1	19961106	EP 96-106725	19960429
	R: DE, FR, GB, IT, NL				
	JP 09019300	A2	19970121	JP 96-37074	19960201
	AU 9651926	A1	19961114	AU 96-51926	19960429
	AU 694013	B2	19980709		
	CN 1148046	A	19970423	CN 96-100236	19960430

Searcher : Shears 308-4994

09/160133

US 5873943            A    19990223            US 96-643157            19960502  
PRAI JP 95-131194            19950502  
JP 96-37074            19960201  
AB    The process of this invention uses the syrup having a maltose purity  
of 81 to 90% as the starting material. The syrup is hydrogenated  
under the existence of catalyst, and then subjected to a chromatog.  
sepn. by using cation-exchange resin, resulting in an aq. soln. of  
maltitol having a maltitol purity of 94 to 99.9%. The aq. soln. is  
further **crystd.** in the presence of a seed **crystal**  
, subjected to a sepn., cooled and kneaded so as to **manuf.**  
both **cryst. maltitol** and **cryst. mixt.**  
solid contg. **cryst. maltitol** at the same time.  
IT    **585-88-6P, Maltitol**  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
(Preparation)  
      (**manufg. cryst. maltitol** by  
      hydrogenation of maltose)

L6    ANSWER 8 OF 28    CAPLUS    COPYRIGHT 1999 ACS  
AN    1996:667005    CAPLUS  
DN    125:299778  
TI    Maltitol composition and preparation  
IN    Caboche, Jean-Jacques  
PA    Roquette Freres, Fr.  
SO    Eur. Pat. Appl., 17 pp.  
      CODEN: EPXXDW  
DT    Patent  
LA    French  
FAN. CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	EP 735042	A1	19961002	EP 96-400650	19960327
	R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, NL, PT, SE				
	FR 2732343	A1	19961004	FR 95-3732	19950329
	FR 2732343	B1	19970613		
	US 5651829	A	19970729	US 95-470461	19950606
	WO 9630382	A1	19961003	WO 96-FR457	19960327
	W: AU, CN, CZ, HU, NO, PL, RO, SK				
	AU 9653374	A1	19961016	AU 96-53374	19960327
	AU 696892	B2	19980924		
	CN 1150432	A	19970521	CN 96-190268	19960327
	CA 2172886	AA	19960930	CA 96-2172886	19960328
	JP 08280354	A2	19961029	JP 96-103308	19960329
	NO 9605023	A	19961126	NO 96-5023	19961126
PRAI	FR 95-3732		19950329		
	US 95-470461		19950606		
	WO 96-FR457		19960327		
AB	<b>Cryst. maltitol</b> (preferably >98% pure, with <2%				

Searcher : Shears 308-4994

polyols) of porous and honeycombed nature and low d. (preferably 300-650 g/L) is **manufd.** by finely spraying a **maltitol** syrup onto a bed of **powd. maltitol** at 60-110.degree. and drying. The product is compressible into tablets and can also be combined with food additives and used in the food or pharmaceutical industries.

L6 ANSWER 9 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1996:352191 CAPLUS  
 DN 125:61346  
 TI Polyols from starch  
 AU Le Bot, Y.; Gouy, P. A.  
 CS Roquette Freres, Lestrem, F-62136, Fr.  
 SO Handb. Starch Hydrolysis Prod. Deriv. (1995), 155-177. Editor(s): Kearsley, Malcolm W.; Dziejcz, Stanley Z. Publisher: Blackie, Glasgow, UK.  
 CODEN: 62XPAC  
 DT Conference; General Review  
 LA English  
 AB A review with numerous refs. is presented on polyols from starch (I), i.e., sugar alcs. chem. defined as saccharide derivs. in which a ketone or aldehyde group is replaced by a OH group, and whose use is listed by the Food and Drug Administration or is generally recognized as safe. They are a family of products widely used throughout the world, and they can be found naturally in various fruits and vegetables. The polyols **produced** from I include: sorbitol, in liq. or **cryst.** form; **maltitol** (II); II syrup (Lycasin); **cryst.** II, mannitol; and xylitol. Industrially, they are produced by hydrogenation of selected sugars wherein the reducing aldehyde or ketone group is converted into a non-reducing alc. group. They are bulk sweeteners which exhibit a pleasant taste and can therefore replace sucrose in many applications, have good chem. and bacteriol. stability, and are not fermented by oral bacteria (not acido-genic but safe for the teeth). The polyols have a lower calorific value than sugar, and they can act as humectants, stabilizers or cryoprotecting agents by controlling the water activity in the **manuf.** of stable and fresh food products.

L6 ANSWER 10 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1995:753399 CAPLUS  
 DN 123:147192  
 TI Preparation of non-crystallizing, viscose xylitol liquids  
 IN Duflot, Pierrick; Caboche, Jean-Jacques  
 PA Roquette Freres S. A., Fr.  
 SO Fr. Demande, 27 pp.  
 CODEN: FRXXBL  
 DT Patent  
 LA French

09/160133

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2708269	A1	19950203	FR 93-9180	19930726
	FR 2708269	B1	19951006		
	WO 9502967	A1	19950202	WO 94-FR927	19940722
	W: AU, CA, FI, JP, NO, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2145411	AA	19950202	CA 94-2145411	19940722
	AU 9473470	A1	19950220	AU 94-73470	19940722
	AU 672330	B2	19960926		
	EP 661930	A1	19950712	EP 94-922300	19940722
	EP 661930	B1	19980916		
	R: AT, BE, CH, DE, DK, ES, GB, GR, IT, LI, LU, NL, SE				
	JP 08502418	T2	19960319	JP 94-504986	19940722
	AT 171044	E	19981015	AT 94-922300	19940722
	ES 2121605	T3	19981201	ES 94-922300	19940722
	NO 9501099	A	19950322	NO 95-1099	19950322
	FI 9501400	A	19950509	FI 95-1400	19950324
	US 5728225	A	19980317	US 96-766848	19961213

PRAI FR 93-9180 19930726  
 WO 94-FR927 19940722  
 US 95-403820 19950314

AB The title compns., contg. (based on dry wt.) xylitol 51-80, D-arabitol 0.1-44, and oligomers of non-reducing glucose polymers 5-48.9%, useful in cosmetic applications (e.g., tooth paste), pharmaceutical formulations, and confectionary products, are prepd. in part by the redn. and/or saccharification of non-reducing glucose polymers.

IT 585-88-6, Maltitol  
 RL: PRP (Properties)  
 (prepn. of non-crystg. viscose xylitol liqs.)

L6 ANSWER 11 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1994:701227 CAPLUS

DN 121:301227

TI Continuous process for manufacturing slurry of maltitol crystals

IN Oomori, Shinya; Myake, Hiroki; Takemura, Motohiro; Kato, Kazuaki

PA Towa Kasei Kogyo Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06234786	A2	19940823	JP 93-43377	19930209
	Searcher : Shears 308-4994				

AB A slurry of maltitol crystals is prepd  
 . by continuously introducing a 94-98 wt.% aq. soln. of  
 maltitol of .gtoreq.88 (preferably 90) wt.% purity to a  
 container at SV 0.4-8.0 (preferably 0.5-6.0) and vigorously stirring  
 it at 90-120.degree., preferably at 95-115.degree. and circumference  
 speed .gtoreq.100 m/min. This process does not require to add seed  
 crystals to an aq. soln. of maltitol, continuously  
 generates seed crystals from the aq. soln. and form in a  
 short period of time with good reproducibility a slurry of  
 maltitol crystals which is suitable for  
 prepg. anhyd. cryst. maltitol or  
 syrup-contg. maltitol crystals or pellets and  
 blocks of syrup-contg. anhyd. maltitol crystals.  
 Thus, 10 L 96.1% aq. maltitol soln. was added to a jacketed  
 stainless steel cylindrical vessel (20 L, inner diam. 30 cm) and  
 stirred by paddle-type stirring blades (length 12 cm .times. width  
 2.1 cm) at 300 rpn (circumference speed 113 m/min) and 105.degree.,  
 while the aq. maltitol soln. with the same concn. was continuously  
 introduced at 40 L/min from the top of the vessel and the same  
 quantity was continuously discharged from the bottom of the vessel.  
 In .apprx.2 min after starting the procedure, the aq. maltitol soln.  
 turned turbid, which confirmed the formation of maltitol crystals,  
 and the slurry of maltitol discharged at 30 in, 1 h, and 2 h was  
 filtered to show that it contained .apprx.30 wt.% maltitol crystals  
 which were suitable as seed crystals for crystn. of maltitol.

IT 585-88-6P, Maltitol

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
 (Preparation)

(continuous process for manufg. slurry of  
 maltitol crystals from concd. aq. soln. by  
 vigorously stirring it under heating)

L6 ANSWER 12 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1994:663274 CAPLUS

DN 121:263274

TI Hair care composition containing agent with liquid crystal structure

IN Tanimura, Tadashi; Tabata, Yoshiko

PA Kao Corp., Japan

SO Ger. Offen., 24 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4340762	A1	19940601	DE 93-4340762	19931130
	JP 06157255	A2	19940603	JP 92-320348	19921130
	US 5665338	A	19970909	US 95-550517	19951030
PRAI	JP 92-320348		19921130		

Searcher : Shears 308-4994

09/160133

US 93-151844 19931115  
OS CASREACT 121:263274; MARPAT 121:263274  
AB A hair care compn. for altering the properties of the hair contains  
(a) a keratin-reducing substance and (b) a nonionic amphipathic  
compd. contg. .gtoreq.1 alkyl or alkenyl group which has an HLB  
value of 2-12 and has a liq. crystal structure at 0-50.degree. alone  
or when mixed with water. Component (b) may be a glycerinated  
polyol, a Me-branched fatty acid pentaerythrityl ester, a  
monoglyceride glycoside, an alkyltrimethylol, or a fatty acid  
trimethylolamide. The compn. is moisturizing and conditioning,  
imparts excellent smoothness, softness, and luster to the hair, and  
prevents splitting and damage to the hair. Thus, a 2-component  
permanent waving compn. contained (1) ammonium thioglycolate soln.  
(contg. 50% thioglycolic acid) 14, isostearyl glycidyl  
ether-pentaerythritol adduct (prepn. given) (I) 3, monoethanolamine  
to pH 9, and water to 100%, and (2) NaBrO3 8, I 3, 48% NaOH 1,  
citric acid to pH 7, and water to 100%.  
IT 585-88-6D, Maltitol, ethers with alkyl- and  
alkenylglycerols  
RL: BIOL (Biological study)  
(liq.-cryst., hair prepns. contg.)  
L6 ANSWER 13 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1994:654358 CAPLUS  
DN 121:254358  
TI Maltitol based sweetening syrup, confectioneries  
produced using this syrup and the use of a  
crystallization propagation-controlling agent in the  
preparation of these products.  
IN Ribadeau-Dumas, Guillaume; Fouache, Catherine; Serpelloni, Michel  
PA Roquette Freres, Fr.  
SO Eur. Pat. Appl., 14 pp.  
CODEN: EPXXDW  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 611527	A1	19940824	EP 94-400321	19940214
	EP 611527	B1	19970528		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, PT, SE				
	FR 2701357	A1	19940819	FR 93-1738	19930216
	FR 2701357	B1	19950512		
	FR 2701633	A1	19940826	FR 93-1864	19930218
	FR 2701633	B1	19951117		
	AT 153504	E	19970615	AT 94-400321	19940214
	ES 2104294	T3	19971001	ES 94-400321	19940214
	FI 9400695	A	19940817	FI 94-695	19940215
	NO 9400512	A	19940817	NO 94-512	19940215

Searcher : Shears 308-4994

09/160133

AU 9455149	A1	19940818	AU 94-55149	19940215
AU 668262	B2	19960426		
CA 2115801	AA	19940817	CA 94-2115801	19940216
JP 06343416	A2	19941220	JP 94-19616	19940216
ZA 9401057	A	19950216	ZA 94-1057	19940216
HU 67115	A2	19950228	HU 94-443	19940216
US 5470591	A	19951128	US 94-197476	19940216
PRAI FR 93-1738		19930216		
FR 93-1864		19930218		

AB A syrup comprising 78-95% maltitol, .gtoreq.5% hydrogenated monosaccharides with a mol. wt. of .ltoreq.182, and 3-19% polysaccharides with a mol. wt. of .gtoreq.1300 (as an agent to control the propagation of maltitol crystn.) is useful in **prepn.** of cooked sugar and semicrystd. confectioneries. Thus, 12 L dextrin syrup was introduced into a vat, the pH was adjusted to 5.5 and the temp. brought to 55.degree., and 0.015.permill. .beta.-amylase (Spezyme DBA) was added. After 48 h of saccharification 1.permill. of .alpha.-amylase (Maxamyl.RTM. HT 3000) was added. The temp. was maintained at 55.degree. and saccharification was stopped after 88 h. The hydrolyzate was concd. to 40% dry matter before hydrogenating it under usual conditions to obtain a reducing sugar amt. below 0.5%. Maltitol syrup was added to increase the maltitol content to 82%. The noncariogenic product was less hygroscopic than syrups of the prior art and had a sweetening power of .apprx.0.80. Hard candy made with the syrup contg. the polysaccharidic agent behaved similarly to candy made with sucrose, whereas candy made with maltitol of the prior art was esp. hygroscopic.

L6 ANSWER 14 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1993:648592 CAPLUS  
DN 119:248592  
TI **Preparation of powdery crystalline**  
**maltitol** useful as a low-cal and low cariogenic sweetener  
IN Ueno, Ryuzo; Kanno, Tomoe; Kunimi, Yuji; Tabata, Akihiko  
PA Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan  
SO Eur. Pat. Appl., 13 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 561585	A1	19930922	EP 93-301933	19930315
	EP 561585	B1	19970528		
	R: DE, FR, GB				
	CA 2091616	AA	19930918	CA 93-2091616	19930315
	JP 06007110	A2	19940118	JP 93-56857	19930317
	US 5304388	A	19940419	US 93-32785	19930317

Searcher : Shears 308-4994

09/160133

PRAI JP 92-60129 19920317

AB Powdery or granular **cryst. maltitol** (I), useful as a low-cal and low cariogenic sweetener, is **prepd.** by a method which comprises adding seed **crystals** of I at a temp. lower than the m.p. of the seed **crystals** to an aq. soln. of I with 1-15% by wt. moisture content; kneading the mixt. in the presence or absence of additives selected from the group consisting of a fat, an oil and a surface-active agent; and continuously applying a shearing force to the kneaded mass. Thus, a kneaded aq. soln. of I, which had been dehydrated to a moisture content of 2.0% and which contained 2.0% palm oil monoglyceride required 3.9 min for powderization vs. 6.0 min for a similar soln. of I that contained no palm oil monoglyceride.

IT 585-88-6P, **Maltitol**

RL: PREP (Preparation)

(powdery **cryst.**, **prepn.** of, method for)

L6 ANSWER 15 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1992:131527 CAPLUS

DN 116:131527

TI Molasses-containing **maltitol crystals** and speedy **production** thereof

IN Kawashima, Shigeru; Magara, Mitsuo; Ishii, Yoshibumi; Kato, Kazuaki

PA Towa Chemical Industry Co., Ltd., Japan

SO PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9200309	A1	19920109	WO 91-JP690	19910523
	W: AT, AU, BB, BG, BR, CA, CH, DE, DK, ES, FI, GB, HU, JP, KR, LK, LU, MC, MG, MW, NL, NO, PL, RO, SD, SE, SU, US				
	RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IT, LU, ML, MR, NL, SE, SN, TD, TG				
	CA 2065301	AA	19911226	CA 91-2065301	19910523
	AU 9178919	A1	19920123	AU 91-78919	19910523
	AU 643528	B2	19931118		
	EP 491953	A1	19920701	EP 91-909723	19910523
	EP 491953	B1	19970423		
	R: BE, DE, FR, GB, IT, NL				
	JP 07014953	B4	19950222	JP 91-509213	19910523
	JP 08280400	A2	19961029	JP 96-48453	19910523
	US 5354856	A	19941011	US 92-836017	19920224
PRAI	JP 90-164148		19900625		
	JP 91-53211		19910226		
	JP 91-509213		19910523		
	WO 91-JP690		19910523		

Searcher : Shears 308-4994



09/160133

AB The title **crystals** having relatively dense and broken structure which can be obsd. with a scanning electron microscope at magnification of x1000, a large apparent sp. gr. and low oil absorbance, are **prepd.** by continuously feeding an aq. soln. of **maltitol** (I) to an extruder provided with a slender cooling and kneading zones, where the soln. is cooled and kneaded in the presence of seed **crystals** to form magma of I, which is continuously extruded through nozzles.

L6 ANSWER 16 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1991:606583 CAPLUS

DN 115:206583

TI Low-calorie sweetener complexes containing fructose and their manufacture

IN Sabase, Hidekazu; Emura, Masayuki; Oowada, Juji

PA Nisshin Sugar Mfg. Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03058769	A2	19910313	JP 89-191155	19890724
	US 5401519	A	19950328	US 92-848022	19920309
PRAI	JP 89-191155		19890724		

AB Low-calorie sweetener complexes are manufd. by coating fructose particles with non-reducing substances and overcoating with very sweet sweeteners. The complexes are discoloration-resistant. Aq. 60% **maltitol** (13 g) was sprayed on 500 g fructose **crystals** at ambient temp., overcoated with 10 g Me .alpha.-L-aspartyl-L-phenylalanine, and dried at 60.degree. to **manuf.** 502.8 g sweetener complex, which was 5 times as sweet as sucrose.

L6 ANSWER 17 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1990:439224 CAPLUS

DN 113:39224

TI Manufacture of sorbitol-containing hard candies

IN Kamimura, Takayuki; Tsukishiro, Yoshiyuki; Maeda, Takuya

PA Sansei Shokuhin Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02086732	A2	19900327	JP 88-239243	19880924

Searcher : Shears 308-4994

JP 05008653 B4 19930202

AB Mainly sorbitol-contg. aq. solns. are boiled down under atm. pressure or vacuum, mixed with **cryst.** sorbitol and **cryst. maltitol**, poured into molds, and cooled to **manuf.** hard candies. Sugarless hard candies are rapidly **manufd.** by this method. Powd. sorbitol 970, powd. maltitol 30, and H2O 150 g were mixed, boiled down at 180.degree., mixed with citric acid 15, lemon flavor 1, colorants 0.5 g at 100.degree., and mixed with 10 g 2 : 1 **cryst.** sorbitol and maltitol at 90.degree.. The soln. was poured into molds and cooled to 29.degree. to **manuf.** hard lemon candies.

L6 ANSWER 18 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1989:38011 CAPLUS

DN 110:38011

TI Agents for improving quality of frozen fish pastes, containing sugar alcohols, fatty acid esters, and polyphosphate salts, and their manufacture

IN Takemura, Motohiro; Iijima, Boseki; Magara, Mitsuo; Matsubara, Hideki; Shimazu, Koshiro; Yamamoto, Yasuhiro

PA Towa Kasei Kogyo Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63116673	A2	19880520	JP 86-262698	19861106
	JP 03007349	B4	19910201		

AB Powd. or granular title agents contg. porous sorbitol (I) and/or **maltitol** (II) 60-95, polyglycerin fatty acid esters (hydrophile-lipophile balance <5) 0.5-6, sorbitan fatty acid esters 0.5-6, edible fats and oils 0.5-9, and polyphosphate salts 1-20% are **prepd.** by (a) drying **cryst.** I and/or II contg. 2-15% H2O; (b) treating the resulting powd. or granular porous I and/or II with aq. solns. or dispersions of polyphosphate salts by spraying or dripping at 50-90.degree.; (c) drying; and (d) impregnating the powders or granules with lipophilic polyglycerin fatty acid esters, sorbitan fatty acid esters, and edible fats and oils. The agents are useful for improving the texture, whiteness, and mouthfeel of fish pastes. Thus, Sorbit W 70 (70% aq. I) was condensed, **crystd.**, pulverized, and dried to give powd. I (porosity 0.645), which was sprayed with an aq. slurry contg. Masolin F 26 (1:1 mixt. of Na tripolyphosphate and Na pyrophosphate), and dried. Then the powders were impregnated with a 2:1:1 mixt. of corn oil, hexaglycerin pentaoleate, and sorbitan monooleate to give the title agent. Alaskan pollack meat 2 kg was mixed with 92 g of the agent and 80 g sugar, ground, frozen at -20.degree., and kept at

Searcher : Shears 308-4994

09/160133

-20.degree. for 6 mo. The frozen paste was thawed and made into kamaboko, which displayed excellent whiteness and gel strength.

L6 ANSWER 19 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1988:62265 CAPLUS

DN 108:62265

TI Powdery cosmetics containing anhydrous crystalline maltitol

IN Takemura, Motohiro; Takeuchi, Hirosuke; Kataura, Koichi; Kato, Kazuaki

PA Towa Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 62221613	A2	19870929	JP 86-60611	19860320
	AU 8770021	A1	19870924	AU 87-70021	19870313
PRAI	JP 86-60611		19860320		

AB A powd. cosmetic is prep'd. from .gtoreq.85% pure anhyd.

cryst. maltitol. The cosmetic compn. is esp.

suitable for makeups. An eye shadow contained talc 50, kaolin 13, MgCO3 1, Zn stearate 10, TiO2 4, anhyd. cryst. maltitol 6, Ultramarine Blue 10, sorbitan sesquioleate 1, liq. paraffin 4, and lanolin 1% by wt.

L6 ANSWER 20 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1987:476127 CAPLUS

DN 107:76127

TI Crystallized maltitol

IN Devos, Francis; Gouy, Pierre Antoine

PA Roquette Freres S. A., Fr.

SO Fr. Demande, 22 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2575179	A1	19860627	FR 84-19600	19841220
	FR 2575179	B1	19870206		
	FI 8505063	A	19860621	FI 85-5063	19851218
	FI 80705	B	19900330		
	FI 80705	C	19900710		
	DK 8505938	A	19860621	DK 85-5938	19851219
	DK 162719	B	19911202		
	DK 162719	C	19920511		
	AU 8551546	A1	19860626	AU 85-51546	19851220

Searcher : Shears 308-4994

09/160133

AU 594316 B2 19900308  
EP 189704 A1 19860806 EP 85-402587 19851220  
EP 189704 B1 19900131  
R: BE, CH, DE, FR, GB, IT, LI, NL, SE  
JP 61180797 A2 19860813 JP 85-285911 19851220  
JP 02011599 B4 19900314  
CA 1266645 A1 19900313 CA 85-498327 19851220  
US 4846139 A 19890711 US 88-143275 19880106  
PRAI FR 84-19600 19841220  
US 85-810246 19851218

AB Crystd. maltitol is manufd. by successive steps of (1) enzymic saccharification of a starch suspension to produce a syrup contg. maltose 50-80% and preferably 60-80% by dry wt.; (2) catalytic hydrogenation of the maltose; (3) chromatog. of the maltitol syrup to obtain a fraction (A) contg. 87-97.5% maltitol and <1%, preferably, <0.6%, polyols with a polymn. degree .gtoreq.4 and the remainder sorbitol and maltotriitol; (4) concn. of (A) and crystn. and sepn. of the maltitol crystals; and (5) rechromatog. etc. of the mother liquor to quant. ext. the maltitol. Schematics are given for an suitable app. A starch slurry was liquified at 108.degree. and pH 6.3 with THERMAMYL enzymes in a 1st chamber and then saccharified with .beta.-amylase at 57.degree. for 48 h in the next chamber in the app. The syrup, contg. 61.3% maltose, was hydrogenated in a chamber contg. Raney nickel and H at 40-70 kg/m2 pressure. The maltitol syrup was chromatographed at 90.degree. in a known manner through strong cationic resins, with a 2-step desorption in zone I, as adsorption in zone II, and a 5-step enrichment and sepn. of partially hydrogenated dextrans and maltotriitol in zone III. The maltitol was then concd. to 90% dry matter and cooled. Crystn. started at 75.degree. to give 99.5% pure maltitol crystals.

L6 ANSWER 21 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1987:406106 CAPLUS  
DN 107:6106  
TI Coated confectionery or pharmaceutic product without sugar obtained by hard drageeification  
IN Boursier, Bernard  
PA Roquette Freres S. A., Fr.  
SO Fr. Demande, 17 pp.  
CODEN: FRXXBL  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	FR 2580904	A1	19861031	FR 85-6579	19850430
	FR 2580904	B1	19900810		

Searcher : Shears 308-4994

09/160133

US 4840797	A	19890620	US 86-854135	19860421
FI 8601768	A	19861031	FI 86-1768	19860428
FI 84131	B	19910715		
FI 84131	C	19911025		
ES 554433	A1	19871016	ES 86-554433	19860428
DK 8601947	A	19861031	DK 86-1947	19860429
DK 169938	B1	19950410		
NO 8601681	A	19861031	NO 86-1681	19860429
NO 166111	B	19910225		
NO 166111	C	19910605		
AU 8656815	A1	19861106	AU 86-56815	19860429
AU 600437	B2	19900816		
EP 201412	A1	19861112	EP 86-400937	19860429
EP 201412	B1	19890726		

R: BE, CH, DE, GB, IT, LI, NL, SE

CA 1303415	A1	19920616	CA 86-507823	19860429
JP 61249349	A2	19861106	JP 86-98428	19860430
JP 07079626	B4	19950830		

PRAI FR 85-6579 19850430

AB A confectionery or pharmaceutical product is coated by hard drageeification with a .gtoreq.90% maltitol soln. or syrup, essentially by a **crystn.** process, preferably via fluidized bed at 20-40.degree.. A low-calorie chewing gum (gum base 28, hydrogenated glucose syrup 20, sorbitol powder 50.8, aroma and colorant 1.2 parts) was drageeified and coated by successive applications of 13-30 g maltitol syrup (per 500 g gum), the coating being air-dried to allow a **cryst.** maltitol (contg. small amts. of sorbitol and maltotritol) coating to form on the gum.

L6 ANSWER 22 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1987:125902 CAPLUS  
DN 106:125902  
TI Durable tablet coating  
IN Mihashi, Masakazu; Miyake, Toshio  
PA Hayashibara Biochemical Laboratories, Inc., Japan  
SO Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 61263915	A2	19861121	JP 85-106000	19850520
	JP 07055898	B4	19950614		

AB Pharmaceutical tablets are **prepd.** by coating the core substances with a soln. contg. **maltitol** and a tablet-shell reinforcing agent such as pullulan, and by **crystg.** the **maltitol**. These tablets do not crack and are resistant to heat. Thus, 150 mg tablet core was coated with a soln. consisting

Searcher : Shears 308-4994

of maltitol (purity 95%) 48, pullulan 2, H<sub>2</sub>O 26, talc 20, and TiO<sub>2</sub> 3 parts by wt. to increase the wt. to 230 mg, and further coated with another soln. consisting of maltitol 70, pullulan 1, and H<sub>2</sub>O 29 parts by wt. until the total wt. of the tablet became 300 mg.

L6 ANSWER 23 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1987:121743 CAPLUS  
 DN 106:121743  
 TI Process and installation for the production of  
 crystallized maltitol  
 IN Gouy, Pierre Antoine; Leleu, Jean Bernard  
 PA Roquette Freres S. A., Fr..  
 SO Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA French  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 202165	A1	19861120	EP 86-401007	19860512
	EP 202165	B1	19890503		
	R: CH, DE, FR, IT, LI, NL				
	FR 2581999	A1	19861121	FR 85-7431	19850515
	FR 2581999	B1	19880812		
	JP 61268696	A2	19861128	JP 86-108739	19860514
	JP 07000630	B4	19950111		
PRAI	FR 85-7431		19850515		

AB Anhyd., cryst. maltitol is prepd. by  
 passing maltitol syrups, contg: maltitol  
 crystals, through a vertical or inclined crystn.  
 zone, having a temp. gradient decreasing at 0.2-2.degree./h towards  
 the bottom, from top to bottom. The syrup contains >80% maltitol  
 and >65% solids, and is combined with 10-120% material recycled from  
 crystn., which is added at a site .apprx.1/3 of its length from the  
 end of the crystallizer. The process gave a 46.7% yield of  
 crystals, and a space-time yield of 0.213 ton/m<sup>3</sup>-day.

IT 585-88-6P, Maltitol  
 RL: PREP (Preparation)  
 (crystn. anhyd., manuf. of, app. for  
 continuous)

L6 ANSWER 24 OF 28 CAPLUS COPYRIGHT 1999 ACS  
 AN 1986:624941 CAPLUS  
 DN 105:224941  
 TI Food containing sucrose in combination with isomaltosyl glucose  
 IN Myake, Toshio; Yoshida, Mikihiro; Takeuchi, Kanae  
 PA Hayashibara Biochemical Laboratories, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF

Searcher : Shears 308-4994

DT Patent  
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61181354	A2	19860814	JP 85-180452	19850819
	JP 03023140	B4	19910328		
	JP 01265867	A2	19891023	JP 88-277369	19881104
	JP 05053465	B4	19930810		
PRAI	JP 85-180452		19850819		

AB Foods contain sucrose in combination with isomaltocyl mono-, di-, or triglucose to prevent cavities. Thus, pullulan was treated with 10% HCl at 95% for 30 min and then with glucoamylase and passed through a Dowex 50W column to give a compn. contg. maltose 0.6, isomaltose 2.58 panose 85.5, isomaltosyl maltose 9.7, and others 1.7%. Chocolates were **prepd.** contg. cocoa paste 40, cocoa butter 10, the compn. 5, sucrose 7, **cryst. maltitol** 3, and milk powder 20 kg.

L6 ANSWER 25 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1984:609307 CAPLUS

DN 101:209307

TI Bacterial reversion assay and micronucleus test carried out on hydrogenated glucose syrups 'Malti-Towa' (powder) and maltitol crystal

AU Takizawa, Yukio; Hachiya, Noriyuki

CS Sch. Med., Akita Univ., Akita, 010, Japan

SO Mutat. Res. (1984), 137(2-3), 133-7

CODEN: MUREAV; ISSN: 0027-5107

DT Journal

LA English

AB Two **prepns.** of maltitol (4-O-.alpha.-D-glucopyranosyl-D-sorbitol) [585-88-6], hydrogenated glucose syrups ad **maltitol crystals**, were examd. for genotoxic potential by a battery of short-term tests. In the bacterial reversion assay, maltitol induced no detectable revertants in any of the tester strains, Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538, or Escherichia coli WP2/pKM101 at doses of 0.5-50 mg/plate with and without rat liver S9 mix. In the micronucleus test, no increase in the frequency of micronucleated erythrocytes was obsd. in bone marrow of mice after administration of the 2 prepns. at 3.75-30 g/kg by gastric intubation.

L6 ANSWER 26 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1984:569135 CAPLUS

DN 101:169135

TI Enzymic saccharification of starch

AU Ohya, Takaichi; Yokoi, Nobumasa; Sakai, Toshihide

CS Amano Seiyaku Co. Ltd., Japan

Searcher : Shears 308-4994

09/160133

SO New Food Ind. (1984), 26(8), 16-21  
CODEN: NYFIAM; ISSN: 0547-0277  
DT Journal; General Review  
LA Japanese  
AB A review with 20 refs., discussing enzymic manuf. of  
starch gels, maltose, maltitol, glucose, sorbitol,  
isomerized sugars, cryst. fructose, cyclodextrins,  
coupling sugars, isomaltose and maltoligosaccharides from starch  
[9005-25-8]. Use of the sugars in foods is also discussed.

L6 ANSWER 27 OF 28 CAPLUS COPYRIGHT 1999 ACS

AN 1982:529385 CAPLUS

DN 97:129385

TI Anhydrous maltitol crystals, hydrogenated crystalline starch  
hydrolyzate containing these crystals and their use

IN Hirao, Mamoru; Hijiya, Hiromi; Miyake, Toshio

PA Hayashibara Biochemical Laboratories, Inc., Japan

SO Belg., 36 pp.

CODEN: BEXXAL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	BE 891442	A1	19820611	BE 81-206806	19811211
	JP 57134498	A2	19820819	JP 81-19512	19810212
	JP 63002439	B4	19880119		
	US 4408041	A	19831004	US 81-321311	19811113
	CA 1186304	A1	19850430	CA 81-390099	19811116
	AU 8177572	A1	19820819	AU 81-77572	19811117
	AU 548960	B2	19860109		
	SE 8106884	A	19820813	SE 81-6884	19811119
	SE 452623	B	19871207		
	SE 452623	C	19880317		
	GB 2097004	A	19821027	GB 81-34909	19811119
	GB 2097004	B2	19850313		
	DE 3146085	A1	19820909	DE 81-3146085	19811120
	DE 3146085	C2	19890323		
	FI 8103788	A	19820813	FI 81-3788	19811126
	FI 70225	B	19860228		
	FI 70225	C	19860912		
	FR 2499576	A1	19820813	FR 81-23150	19811211
	FR 2499576	B1	19860214		
	US 4717765	A	19880105	US 85-809831	19851209
	SE 8600756	A	19860219	SE 86-756	19860219
	SE 457261	B	19881212		
	SE 457261	C	19890413		
	US 4917916	A	19900417	US 86-843854	19860321
	JP 63177765	A2	19880721	JP 87-195386	19870806

Searcher : Shears 308-4994



09/160133

JP 01003468	B4	19890120		
JP 63190895	A2	19880808	JP 87-195387	19870806
JP 01034998	B4	19890721		
US 4789559	A	19881206	US 87-89418	19870825
PRAI JP 81-19512		19810212		
US 81-321311		19811113		
US 83-511762		19830707		
US 84-640782		19840814		
US 85-696584		19850130		

AB The title **crystals** are **prepd.** by **crystn**  
. from **maltitol** [585-88-6] solns. or from  
hydrogenated, hydrolyzed **massecuites** from **maltitol**  
**crystn.** Thus, a slurry of 1 part potato starch [9005-25-8]  
in 10 parts H<sub>2</sub>O was heated with .alpha.-amylase at 90.degree. until  
liquefied, heated to 130.degree., cooled to 50.degree., mixed with  
50 units pullulanase and 30 units .beta.-amylase/g starch, heated 46  
h at 50.degree. and pH 6.0, decolorized with active C, and deionized  
to give a soln. of sugars, 92.5% of which is maltose. This soln.  
(50% maltose) was hydrogenated over 10% Raney Ni at  
90-125.degree./20-98 bar, filtered, purified with active C,  
deionized, concd. to 80%, nucleated with 1% **cryst. maltitol**, and  
cooled to 20.degree. over 3 days to give 46% (based on starch)  
**cryst. maltitol** with purity 99.2%.

IT 585-88-6P

RL: PREP (Preparation)  
(anhyd. **crystals**, **manuf.** of)

L6 ANSWER 28 OF 28 CAPLUS COPYRIGHT 1999 ACS  
AN 1972:2714 CAPLUS  
DN 76:2714  
TI Sweetener for foods and beverages  
IN Mitsuhashi, Masakazu; Sugimoto, Kaname; Hirao, Mamoru  
PA Hayashibara Co., Ltd.  
SO Ger., 6 pp.  
CODEN: GWXXAW  
DT Patent  
LA German

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	DE 1903075	A	19690821	DE 69-1903075	19690122
	US 3741776	A	19730626	US 69-789935	19690108
	GB 1250952	A	19711027	GB 69-1250952	19690122
PRAI	JP 68-3863		19680123		

GI For diagram(s), see printed CA Issue.

AB **Maltitol** (4-O-.alpha.-D-glucopyranosyl-D-sorbitol, I),  
**prepd.** by hydrogenation of maltose with Raney Ni as  
catalyst, has 75 of the sweetness of sucrose, but does not  
**crystallize** at high concns. It is cal-free and

Searcher : Shears 308-4994

09/160133

nonirritating to the intestinal tract of higher animals. The substance is very sol. and does not discolor at <200.degree.. The sweetener may be used in carbonated beverages, concd. sirups, jelly, bakery products, condensed milk, and alc. beverages.

=> d his 17-

(FILE 'CAPLUS' ENTERED AT 16:48:45 ON 04 MAR 1999)

L7 10 S L2(S)FORM?  
L8 4 S L7 NOT L6

=> d 1-4 .bevstr

L8 ANSWER 1 OF 4 CAPLUS COPYRIGHT 1999 ACS  
AN 1995:528673 CAPLUS  
DN 122:274076  
TI Process for conditioning substances  
IN Trofast, Eva Ann-Christin; Briggner, Lars-Erik  
PA Astra Aktiebolag, Swed.  
SO PCT Int. Appl., 20 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9505805	A1	19950302	WO 94-SE780	19940825
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN				
	RW: KE, MW, SD, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	ZA 9405675	A	19960429	ZA 94-5675	19940729
	AU 9476264	A1	19950321	AU 94-76264	19940825
	AU 681186	B2	19970821		
	BR 9407320	A	19960416	BR 94-7320	19940825
	EP 717616	A1	19960626	EP 94-926421	19940825
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CN 1133004	A	19961009	CN 94-193793	19940825
	HU 74000	A2	19961028	HU 96-447	19940825
	JP 09501930	T2	19970225	JP 94-507516	19940825
	US 5709884	A	19980120	US 95-379471	19950130
	NO 9600744	A	19960223	NO 96-744	19960223
	FI 9600869	A	19960226	FI 96-869	19960226
	CN 1195523	A	19981014	CN 97-123049	19971126
PRAI	SE 93-2777		19930827		

Searcher : Shears 308-4994

WO 94-SE780 19940825

AB The present invention relates to a process for providing a stable cryst. form to a fine-grained substance or a substance mixt., which can be produced, stored and used while maintaining the aerodynamic properties required for inhalation of such a substance or a substance mixt., by a) in case of a substance mixt., prepg. a homogeneous mixt. of the substances; b) micronizing, direct pptg. or diminishing by any conventional method the substance or substance mixt. into a particle size required for inhalation, the particle size being less than 10 .mu.m; c) optionally preparing a homogeneous mixt. of the desired substances when each substance has been introduced from stage b) as sep. fine-grained particles; d) conditioning said substance or substance mixt. by treatment with a water contg. vapor phase in a controlled fashion; and e) drying.

IT 585-88-6, Maltitol

RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(process for providing stable cryst. form for inhalation pharmaceuticals)

L8 ANSWER 2 OF 4 CAPLUS COPYRIGHT 1999 ACS

AN 1993:219860 CAPLUS

DN 118:219860

TI Cycloheptenopyridines for the treatment of ulcer

IN Yuasa, Shuichiro; Nishinomiya, Yozo

PA Toa Eiyo K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

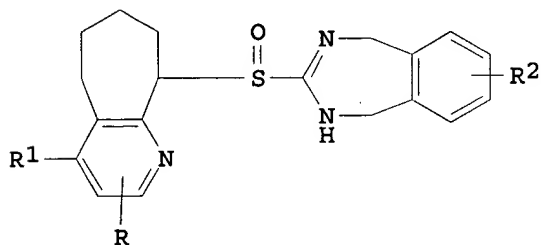
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 04364127	A2	19921216	JP 91-163468	19910610
OS	MARPAT 118:219860				
GI					



I

AB Stable ulcer inhibitor prepns. are manufd. by mixing cycloheptenopyridines I [R = H, lower alkyl; R1 = H, (substituted) lower alkoxy; R2 = H, halo] or their salts with amines or alc. solns. of amines, kneading or dissolving the mixts., drying the mixts., addn. of basic inorg. salts, nonreducing sugars, and medically acceptable additives to the mixts., and then forming the compns. Tablets contg. 9-(benzimidazol-2-yl)sulfinyl-4-methoxy-2,3-cycloheptenopyridine Na salt (II) 10, diethanolamine 0.2, MgO 30, maltitol 30.3, cryst. cellulose 45, starch 30, talc 1.5, and Mg stearate 3 mg/each were kept at 40.degree. for 1 mo. to show 96% residual II, vs. 51%, for control tablets formulated without diethanolamine, MgO, and maltitol

L8 ANSWER 3 OF 4 CAPLUS COPYRIGHT 1999 ACS

AN 1993:175817 CAPLUS

DN 118:175817

TI Crystalline sugar alcohol containing uniformly dispersed liquid pharmaceutical compound

IN DuRoss, James W.

PA ICI Americas, Inc., USA

SO U.S., 5 pp. Cont.-in-part of U.S. Ser. No. 213,863, abandoned.  
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 5178850	A	19930112	US 90-538966	19900615
PRAI	US 88-213863		19880630		

AB Liq. drugs are uniformly dispersed in a matrix of cryst. sugar alc. (sorbitol, mannitol, etc.). A mixt. of 1.5 g Red 40 dye and 50 mL Benadryl Exlair was blended into molten 3000 g anhyd. sorbitol and heated at 195.degree. for crystn. The cocrystd. sorbitol-Benadryl Exlair was tabletted as usual.

IT 585-88-6, Maltitol

RL: BIOL (Biological study)

(cryst., as matrix for formulation of liq. drugs)

L8 ANSWER 4 OF 4 CAPLUS COPYRIGHT 1999 ACS

AN 1992:492508 CAPLUS

DN 117:92508

TI Preparation of noncrystallizing liquid xylitol composition

IN Pepper, Tammy; Keipinen, Pasi

PA Soumen Xyrofin Oy, Finland

SO PCT Int. Appl., 17 pp.

CODEN: PIXXD2

Searcher : Shears 308-4994

09/160133

DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9206943	A1	19920430	WO 91-FI313	19911011
	W: CA, FI, JP, NO				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	US 5144024	A	19920901	US 90-596064	19901011
	EP 553222	A1	19930804	EP 91-919241	19911011
	EP 553222	B1	19980107		
	R: DE, DK, GB, IT, NL, SE				
PRAI	US 90-596064		19901011		
	WO 91-FI313		19911011		

AB Noncrystg., shelf-stable liq. xylitol (I) contg. 50-80% solids, of which 50-90% comprise I and 10-50% nonxylitol polyols, is described. Liq. I is prepd. by mixing a soln. of pure I with a soln. contg. other polyols, or in the form of syrups comprising 10-50% solids. Alternatively, pure I is produced by hydrogenation of cryst. xylose. Liq. I compns., contg. 50-70% solids and formulated by addn. of maltitol to pure I solns. were resistant to crystn. when stored at 5-30.degree. for several weeks or months.

=> d his 19-

(FILE 'MEDLINE, BIOSIS, EMBASE, LIFESCI, BIOTECHDS, WPIDS, CONFSCI, JICST-EPLUS, PROMT, SCISEARCH, CBNB, CIN, CEN' ENTERED AT 16:51:14 ON 04 MAR 1999)

L9 76 S L4(S) (MANUF? OR PROD? OR PREP? OR FORM?)  
L10 68 DUP REM L9 (8 DUPLICATES REMOVED)

=> d 1-68 bib abs

L10 ANSWER 1 OF 68 SCISEARCH COPYRIGHT 1999 ISI (R)  
AN 1999:115249 SCISEARCH  
GA The Genuine Article (R) Number: 162NB  
TI Study of the respective binary phase diagrams of sorbitol with mannitol, maltitol and water  
AU Siniti M; Jabrane S (Reprint); Letoffe J M  
CS INST NATL SCI APPL, LAB THERMODYNAM APPL, BAT 401, F-69621 VILLEURBANNE, FRANCE (Reprint); INST NATL SCI APPL, LAB THERMODYNAM APPL, F-69621 VILLEURBANNE, FRANCE; UNIV CHOUAIB DOUKKALI, CHIM PHYS LAB, EL JADIDA 24000, MOROCCO  
CYA FRANCE; MOROCCO  
SO THERMOCHIMICA ACTA, (18 JAN 1999) Vol. 325, No. 2, pp. 171-180. Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS. ISSN: 0040-6031.

Searcher : Shears 308-4994

DT Article; Journal

FS PHYS

LA English

REC Reference Count: 18

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB Differential scanning calorimetry (DSC) was used to investigate the thermal behaviour of sorbitol, mannitol, **maltitol** and to establish the following phase diagrams: sorbitol/mannitol, sorbitol/**maltitol**, sorbitol/water and **maltitol**/water. Pure sorbitol and **maltitol** (4-O alpha-glucopyranosyl-D-glucitol) vitrified uniquely upon cooling, once obtained under a melt form. Mannitol **crystallized** systematically in our conditions. These differences in behavior were discussed in terms of different molecular conformations in the liquid and **crystalline** states for sorbitol (hence, the difficulty to **crystallize**), whereas mannitol would present the same conformations in the two states. For sorbitol/mannitol and sorbitol/**maltitol** mixtures, the equilibrium phases could not be obtained (despite annealing experiments being carried out) and only the out of equilibrium phase diagrams were established. The tentative equilibrium sorbitol/water and mannitol/water phase diagrams were constructed but no hydrates were observed in our conditions (synthetic preparation of samples). The **maltitol**/water phase diagram presented simpler behavior than sorbitol/water despite the fact that **maltitol** is a larger and more complicated molecule (it is a derived sorbitol molecule). (C) 1999 Elsevier Science B.V. All rights reserved.

L10 ANSWER 2 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 98-054834 [06] WPIDS

DNC C98-018950

TI **Manufacturing crystalline maltitol and crystalline** solid containing **maltitol** - by catalytically hydrogenating maltose containing syrup to give sugar alcohol syrup and chromatographically separating with cation exchange resin.

DC B07 D13 D17 D21 E13

IN MAGARA, M; OKAMOTO, N; TATENO, Y; YONEDA, S

PA (TOAG) TOWA CHEM IND CO LTD; (TOAG) TOWA KASEI KOGYO KK

CYC 20

PI EP 816373 A1 980107 (9806)\* EN 21 pp

R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

AU 9728349 A 980115 (9809)

JP 10017589 A 980120 (9813) 14 pp

ADT EP 816373 A1 EP 97-110882 970702; AU 9728349 A AU 97-28349 970627;

JP 10017589 A JP 96-194099 960705

PRAI JP 96-194099 960705

AN 98-054834 [06] WPIDS

Searcher : Shears 308-4994

AB EP 816373 A UPAB: 980209

**Manufacturing crystalline maltitol and crystalline mixture solid containing maltitol** comprises: (a) hydrogenating syrup with a maltose content of 40-75 wt.% in the solid component in the presence of a catalyst to obtain corresponding syrup of sugar alcohol; (b) chromatographically separating the sugar alcohol syrup by supplying to a column packed with a cation exchange resin to obtain: (b-i) high sorbitol content fraction, (b-ii) **maltitol** syrup fraction with a **maltitol** content of 80.5-86.5 wt.% in the solid component, and (b-iii) polyol fraction having a degree of polymerisation (DP) of at least 3; (c) chromatographically separating the **maltitol** syrup fraction by supplying to a column packed with a cation exchange resin to obtain: (c-i) high sorbitol content fraction, (c-ii) second **maltitol** syrup fraction with a **maltitol** content of at least 97.5 wt.% in the solid component, and (c-iii) polyol fraction whose degree of polymerisation (DP) is at least 3; (d) **crystallising** after a concentration of syrup fraction (c-ii) and separating the **maltitol** from mother liquor with a **maltitol** content of at least 90 wt.% in the solid component and optionally (e) spray-drying or kneading the mother liquor under cooling in the presence of a seed **crystal** to obtain a **crystalline mixture solid containing crystalline maltitol**.

Catalytic hydrogenation is preferably effected in a continuous process by using a Raney nickel catalyst prepared by quenching molten nickel and aluminium and subjecting, in as manufactured form or after milling, to classification and activation, or a Raney catalyst prepared by forming a powder into pellets.

USE - The sorbitol and oligosaccharide fraction by-products may be used in commercially hydrogenated starch hydrolysate in food products, pharmaceuticals and cosmetics.

ADVANTAGE - The process is economical and produces high value added **crystalline maltitol** and **crystalline mixture solid containing crystalline maltitol** from cheap raw materials. The **maltitol** has a sweet taste and degree of sweetness similar to those of sucrose and does not cause tooth decay.

Dwg.2/3

L10 ANSWER 3 OF 68 CBNB COPYRIGHT 1999 RSC  
 AN 14(32):45620 CBNB  
 TI Roquette expands polyols.  
 SO Chemical Market Reporter (3 Aug 1998), (10-99 words)  
 Availability: Website: <http://www.chemexpo.com/cmronline>  
 CODEN: CMREF6 ISSN: 1092-0110  
 DT Journal  
 LA English  
 PY 1998

Searcher : Shears 308-4994

AB Roquette America is expanding its polyol **production** with the construction of a new polyol plant at its site at Keokuk, IA. This will concentrate on the market development of polyols such as Maltisorb **crystalline maltitol**.

L10 ANSWER 4 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 97-271781 [24] WPIDS

DNC C97-087370

TI Hard, **crystalline**, sugar-free coating for e.g. chewing gum - contains mannitol or glucose 1-6 mannitol and xylitol, maltitol or lactitol, giving improved crunchiness, reduces coating time.

DC B07 C07 D13 D16 D17 D25 E13

IN RIBADEAU-DUMAS, G; SERPELLONI, M; RIBADEAU, D G; RIBADEAUDUMAS, G

PA (ROQF) ROQUETTE FRERES SA

CYC 75

PI WO 9716074 A1 970509 (9724)\* EN 41 pp

RW: AT BE CH DE DK EA ES FI FR GB GR IE IT KE LS LU MC MW NL OA  
PT SD SE SZ UG

W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI  
GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG  
MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA  
UG US UZ VN

EP 774210 A1 970521 (9725) FR 14 pp

R: AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE

FR 2740300 A1 970430 (9725) 28 pp

AU 9670468 A 970508 (9727)

NO 9604585 A 970502 (9728)

CA 2189094 A 970501 (9735) FR

AU 9674980 A 970522 (9739)

MX 9605214 A1 970601 (9825)

ADT WO 9716074 A1 WO 96-FR1686 961028; EP 774210 A1 EP 96-402289 961028;

FR 2740300 A1 FR 95-12773 951030; AU 9670468 A AU 96-70468 961029;

NO 9604585 A NO 96-4585 961029; CA 2189094 A CA 96-2189094 961029;

AU 9674980 A AU 96-74980 961028; MX 9605214 A1 MX 96-5214 961029

FDT AU 9674980 A Based on WO 9716074

PRAI FR 95-12773 951030

AN 97-271781 [24] WPIDS

AB WO 9716074 A UPAB: 970709

Hard, **crystalline** coating containing at least 90% of a mixture of polyols comprises (as dry matter) 20-50% mannitol or 5-50% glucose 1-6 mannitol, the rest of the dry matter being xylitol, **maltitol** or lactitol. Also claimed is the use of mannitol or glucose 1-6 mannitol to improve the rate of **formation** of a hard coating using xylitol, **maltitol** and/or lactitol.

USE - The coating is used on chewing gum (claimed), lozenges, jellies, hard sweets, chocolates, pharmaceutical or veterinary products, dietetic products, plant granules, seeds, dried fruits, agglomerated fertilisers, additives based on enzymes or

Searcher : Shears 308-4994



microorganisms for use in foods, e.g. bread, industrial products such as washing compositions and detergents and additive powders containing vitamins, aromas, perfumes, acids, sweeteners or various active ingredients.

ADVANTAGE - The coating time is reduced and the coating is more crunchy and sugar-free.

Dwg.0/0

L10 ANSWER 5 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 98-244129 [22] WPIDS

DNC C98-076146

TI Prodn. of powder mix composition - comprises ascorbic acid and maltitol, used as sweetening agents harmless for teeth.

DC B03 B05 D13 E13 E17

PA (TOAG) TOWA KASEI KOGYO KK

CYC 1

PI JP 09157285 A 970617 (9822)\* 6 pp

ADT JP 09157285 A JP 95-344312 951206

PRAI JP 95-344312 951206

AN 98-244129 [22] WPIDS

AB JP09157285 A UPAB: 980604

Prodn. of powder mix compsn. of ascorbic acid, and maltitol in good fluidity comprises (1) prepn. of a maltitol mass kit contg. 10-70 wt.% of maltitol suspending crystal from aq. soln. contg. 70-90 wt.% of maltitol in 85-99.9 wt.% of purity, and the prepn. of an ascorbic acid mass kit in 98 wt.% or more of the purity, and (2) spray-drying of mixt. of the two mass kits, at 30-75 deg. C contg. the solid component as controlled to be 5-80 wt.% of maltitol, and 20-95 wt.% of ascorbic acid.

USE - The powder mix compsn. of ascorbic acid, and maltitol is used as sweetening agents harmless for teeth.

ADVANTAGE - The powder mix has good fluidity, and storage-stability.

Dwg.0/0

L10 ANSWER 6 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 97-328476 [30] WPIDS

DNC C97-105582

TI Preparation of crystalline maltitol -

involves hydrogenating syrup containing maltitol, feeding obtained sugar alcohol syrup to cation exchange resin filled column etc..

DC D17 E13

PA (TOAG) TOWA KASEI KOGYO KK

CYC 1

PI JP 09132587 A 970520 (9730)\* 9 pp

ADT JP 09132587 A JP 95-313721 951108

PRAI JP 95-313721 951108

Searcher : Shears 308-4994

AN 97-328476 [30] WPIDS  
 AB JP09132587 A UPAB: 970723

**Preparation of crystalline maltitol**

comprises continuously hydrogenating 30-75% syrup containing 81-90% maltitol in solid to prepare the corresponding sugar alcohol syrup. The sugar alcohol syrup is fed continuously to a column filled by a cation exchange resin to separate it chromatographically to give a maltitol-rich syrup fraction containing at least 95% maltitol in solid. The maltitol-rich syrup fraction is concentrated and recrystallised continuously to give crystalline maltitol and a mother liquor and the mother liquor is mixed continuously with the sugar alcohol syrup by the first step and supplied to the second step.

ADVANTAGE - Crystalline maltitol of high purity is prepared at low cost.  
 Dwg.0/4

L10 ANSWER 7 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 97-314247 [29] WPIDS

DNC C97-101144

TI Preparation of mixed powder composition of sugar and maltitol - by feeding maltitol and sugar massecuite(s) to spray drier and spray drying in air.

DC D17 E13

PA (TOAG) TOWA KASEI KOGYO KK

CYC 1

PI JP 09121900 A 970513 (9729)\* 6 pp

ADT JP 09121900 A JP 95-302270 951027

PRAI JP 95-302270 951027

AN 97-314247 [29] WPIDS

AB JP09121900 A UPAB: 970716

**Preparation of a mixed powder composition of sugar and maltitol of high fluidity** comprises: (1) preparing maltitol massecuite of suspended crystal in an amount of 5-50 wt.% from an aqueous maltitol solution of a maltitol purity of 85-99.9 wt.% and a solid concn. of 70-90 wt.% and preparing a sugar massecuite from an aqueous sugar solution; (2) maintaining the feed ratio of maltitol massecuite at 10-21 wt.% on solid basis, and the feed ratio of sugar massecuite to 79-90 wt.% on solid basis and feeding each massecuite to a spray drier and spray drying at an air flow temperature of 30-90 deg. C.

ADVANTAGE - The method requires no complex equipment to prepare a composition of high hygroscopicity.

In an example, a commercial granulated sugar of a purity of 99.9 wt.% was adjusted to a concentration of 78% and heated to 100 deg. C and then quenched to 15 deg. C to crystallise out the fine sugar crystal to give a sugar massecuite. A

Searcher : Shears 308-4994

maltitol massecuite of suspended crystal amount of 35% was also prepared. They were fed to a spray drier at a ratio of sugar to maltitol of 83:17 on solid basis and dried at an air flow temperature of 70 deg. C.  
Dwg.0/0

L10 ANSWER 8 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
AN 97-294973 [27] WPIDS  
DNC C97-095332  
TI New highly fluid maltitol power - used as sweetener for foods, pharmaceuticals or cosmetics..  
DC B03 D13 D21 E13  
PA (TOAG) TOWA KASEI KOGYO KK  
CYC 1  
PI JP 09110891 A 970428 (9727)\* 7 pp  
ADT JP 09110891 A JP 95-297317 951023  
PRAI JP 95-297317 951023  
AN 97-294973 [27] WPIDS  
AB JP09110891 A UPAB: 970702

Highly fluid maltitol powder has an angle of repose of 20 - 50 mesh powder in particle size of 25 - 37 degrees after preservation at 25 degrees C and 50% humidity for 2 days.

Also claimed is preparation of highly fluid maltitol powder by: (1) preparing a mass kit of 10-50 wt.% crystalline suspension of maltitol from an aqueous maltitol solution having a maltitol purity of 85-99.9 wt.% and solid content of 70-90 wt.% (1st step); (2) preparing maltitol powder of 2-7 wt.% moisture content from the above mass kit by spray-drying at an air temperature of 30-80 degrees C and (3) maturing and drying the above powder at 25-65 degrees C.

USE/ADVANTAGE - The highly fluid maltitol powder can be used as sweetener for foods, pharmaceuticals (preventing carious tooth, for patients of diabetes mellitus) or cosmetics. The maltitol powder is readily applicable to powder transport or automation system and during transport, no solid mass is formed. Because crystallinity is high, hygroscopicity of the powder is low. The fluidity is retained after preservation.

In an example, 75% solution of maltitol (94.5% purity) was heated at 100 degrees C and then cooled to 15 degrees C with stirring within 30 minutes to which was added fine powdered crystalline maltitol (2% for whole). The mixture was slowly stirred for 5 hours to give a mass kit of 35% crystal content. The mass kit (kept at 15 degrees C) was spray-dried under blowing air at 70 degrees C to give powder (powder temperature: 40 degrees C; moisture content: 5%). The powder was matured at 40 degrees C for 5 hours and then dried at 100 degrees C in a rotary kiln dryer to yield highly fluid maltitol powder.

Searcher : Shears 308-4994

Dwg. 0/0

L10 ANSWER 9 OF 68 CBNB COPYRIGHT 1999 RSC

AN 13(17):21861 CBNB

TI Polyol sweeteners gain from low calorie users.

SO Chemical Market Reporter (14 Apr 1997) 251 (15), 14, (200-899 words)

CODEN: CMKRA5 ISSN: 0090-0907

DT Journal

LA English

PY 1997

AB Strong market demand for polyol sweeteners has encouraged

**producers** to upgrade facilities and add capacity. The

Cultor Food Science division, Xyrofin, is adding lactitol capacity at Thompson, IL. The \$35 M expansion will increase capacity to 10,000 tonnes/y when it comes onstream in 1997. Cultor's total sales are \$1.8 bn/y, of this \$480 M/y comes from the food divisions. Lactitol is used in sugar-free or reduced calorie foods. The plant at Thompson **produces** both anhydrous and monohydrate **forms** of lactitol. In 1996 Xyrofin was

awarded a US patent for lactitol monohydrate which is valid to

2013. In Europe, Cultor is due to bring onstream a new xylose plant

at Lenzing, Austria spring 1997. Cultor plans to begin expanding

xylitol capacity in 2000. Another major **producer** of

polyols, Roquette Freres Group, expanded **crystalline**

**maltitol** capacity in France and began **producing**

liquid sorbitol at Keokuk, IA, in 1996. The US mannitol

**producer** SPI Polyols Inc **produces** an excess of

200 M lbs/y sorbitol and mannitol.

L10 ANSWER 10 OF 68 CBNB COPYRIGHT 1999 RSC

AN 14(3):3067 CBNB

TI Sweeteners: Cerestar to enter erythritol production in US and Europe.

SO Chemical Week (17 Dec 1997) 159 (47), 14, (200-899 words)

CODEN: CHWKA9 ISSN: 0009-272X

DT Journal

LA English

PY 1997

AB Cerestar is to erect plants in Europe and the US to **produce****crystalline** erythritol. A 20,000 tonnes/y, \$57 M

fermentation unit is planned at Hammond, IN. A 10,000 tonnes/y unit

is also to be erected at Castelmassa, Italy. Both facilities are

expected onstream by 2000. A new ITL 130 bn polyols plant at the

location **produces** sorbitol, **maltitol**, manitol

and xylitol. A polyols plant at Darfo, Italy, will close.

L10 ANSWER 11 OF 68 PROMT COPYRIGHT 1999 IAC

AN 97:227773 PROMT  
TI Polyol Sweeteners Gain From Low-Calorie Uses  
AU LERNER, MATTHEW  
SO Chemical Market Reporter, (14 Apr 1997) pp. 14.  
ISSN: 0090-0907.  
LA English  
WC 898

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB DRIVEN BY CONSUMER demand for low-calorie foods, polyol sweeteners are experiencing double-digit growth and enjoying wider application. In response, producers are upgrading and adding capacity to fuel the expansion of these newer-generation food ingredients. The Xyrofin division of Cultor Food Science, headquartered in Helsinki, Finland, is increasing production capacity for lactitol at its facility in Thompson, Ill. The \$35 million project will give the plant a capacity greater than 10,000 metric tons per year of material. Of Cultor's \$1.8 billion in yearly sales, Food Science accounts for about \$480 million annually. The lactitol expansion completes Cultor's \$125 million polyol manufacturing investment plan initiated in 1994 with the construction of the Thompson plant. The new unit is scheduled to come on stream in 1998.

#### PROJECT UNDERWAY

Work is already under way in the Thompson expansion, which the company says will significantly increase its capacity to supply lactitol to the growing low-calorie and sugar-free food markets. The investment in Thompson, says Cultor, reaffirms its commitment to the specialty ingredients market.

Lactitol is one of the family of specialty polyols the company makes at the Thompson facility and another site in Kotka, Finland. Xyrofin is the world's largest producer of xylitol, another specialty polyol. The company also makes maltitol.

Derived from lactose (milk sugar), lactitol is used in sugar-free and reduced-calorie food products such as chocolates, confections, baked goods and frozen dairy desserts. Cultor says the additional capacity at Thompson will allow expansion into pharmaceutical markets, especially for the company's newly patented directly compressible form of lactitol, Finlac DC.

The new Thompson lactitol unit will be able to produce both the monohydrate and anhydrous forms of lactitol, for which Cultor owns product manufacturing rights. Anhydrous lactitol, developed in 1995, is employed extensively in the manufacture of sugar-free chocolate. Last year, Xyrofin received a US patent for its pure lactitol monohydrate, giving the company exclusive rights to make the material in the US until 2013.

In Europe, Cultor's previously announced new xylose plant in Lenzing, Austria, is scheduled to come on line this spring, providing increased raw materials for xylitol production in Kotka.

THIS IS AN EXCERPT: COPYRIGHT 1997 Schnell Publishing Company Inc.

Searcher : Shears 308-4994

L10 ANSWER 12 OF 68 PROMT COPYRIGHT 1999 IAC

AN 97:572435 PROMT

TI Sugar-free chocolate

AU Gonze, Michel; Schueren, Frederick Van der

SO Candy Industry, (Oct 1997) pp. 42.

ISSN: 0745-1032.

LA English

WC 1924

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB Michel Gonze and Frederick Van der Schueren

Of all confectionery **products**, chocolate is the most luxurious. Traditionally based on sugar, cocoa and cocoa fats, it is rich in calories and therefore eating chocolate always gives the consumer a sense of indulging. The lack of texture and taste quality in earlier low calorie versions has only strengthened this feeling towards traditional sugar containing **products**. With **crystalline maltitol**, a new generation of polyol sugar replacers, the sugar-free, reduced calorie chocolate can taste as good as the traditional **product**.

The sucrose content of standard chocolate varies between 35 to 50 percent, depending on the type of chocolate. In spite of these high levels, sucrose is only responsible for about one-third of the total calorie content of chocolate. This means that when sucrose is replaced by a low calorie bulk sweetener composition it will be difficult or nearly impossible to reach a 30 percent calorie reduction such as proposed foran EC directive for low calorie chocolate.

The chocolate production process can be summarized as follows. By mixing cocoa liquor, bulk sweetener and a small part of cocoa butter, a chocolate paste of somewhat rough texture and plastic consistency is obtained. If the texture is too slack, the paste will not climb the rolls correctly, or, if too stiff, passage between the rolls will be retarded and will be erratic.

The refining of the chocolate paste is an important operation and produces the smooth texture so desirable in modern chocolate confectionery. The main purpose of a roll refiner is to grind the paste fed to it, but it also acts as a dispersion machine in which agglomerates are destroyed and the particles are fully wetted with the liquid fat ingredient.

THIS IS AN EXCERPT: COPYRIGHT 1997 Advanstar Communications Inc.

L10 ANSWER 13 OF 68 PROMT COPYRIGHT 1999 IAC

AN 97:268612 PROMT

TI Hold the sugar?

Sugar free candy are made with high intensity sweetener substitutes such as saccharin or aspartame

Searcher : Shears 308-4994

AU Mogelonsky, Marcia  
 SO Candy Industry, (Apr 1997) pp. 20.  
 ISSN: 0745-1032.

LA English

WC 833

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB MARCIA MOGELONSKY

To some consumers, candy without sugar is an oxymoron - a contradiction in terms. After all, the reason for candy is to satisfy their sweet tooth, a part of the body that can only be happy with a quick hit of sugar. But sugar-free candy - sweets made with high intensity sweetener substitutes such as aspartame or saccharin, or with sugar alcohols, also known as polyols - appeal to people concerned about their own health as well as the health of their children.

The link between sugar and hyper-activity among children has been disclaimed, most recently in a study published in the New England Journal of Medicine in 1994. But sugar-free candy still appeals to parents who worry about the relationship between sugar and dental decay.

These consumers may prefer to feed their children aspartame or saccharin-based gum and candy, but others are suspicious of artificial sweeteners. In a perfect world, of course, the solution to the sugar/artificial sweetener dilemma would simply be to give the kids fruit instead of candy. Since most parents have learned that the world is not perfect, some may turn to candy made with the new polyols that have been found to provide equal sweetness as well as fewer calories than traditional sugar-based treats.

Polyols - including hydrogenated monosaccharides (among them sorbitol and xylitol) and hydrogenated disaccharides (isomalt, maltitol, and lactitol) - have different characteristics than the products they are designed to replace. They may affect the solubility, sweetness, calorie content, crystallization properties and laxative threshold of the new product. Maltitol, for example, is very close to sugar in composition, according to one industry expert, but it still has some important differences. As well, maltitol and other sugar alternatives are not always fully digested and may cause diarrhea if consumed in large enough quantities, a problem that has also been noted in the production of artificial fats.

The substitute sugars can also cause difficulties in the manufacturing process. 'For example, sugar is a bulking agent in the manufacture of chocolate products and it is difficult to develop chocolate without sugar because of this,' says Michael Kinney, public relations specialist at Hershey Foods. 'People have tried to use alternatives, but more often than not the result is a chocolate product without the mouth feel of real chocolate.'

Hershey does not currently make any sugar-free products.

THIS IS AN EXCERPT: COPYRIGHT 1997 Advanstar Communications Inc.

Searcher : Shears 308-4994

09/160133

L10 ANSWER 14 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 96-499096 [50] WPIDS

DNC C96-155947

TI **Prodn. of crystalline maltitol** from  
maltose syrup - by hydrogenation, chromatography and further  
processing.

DC B07 D13 D17 D21 E17

IN KATAURA, K; KATO, K; MAGARA, M; ONUKI, Y; OSADA, Y; TATENO, Y;  
YAMAZAKI, F

PA (TOAG) TOWA CHEM IND CO LTD; (TOAG) TOWA KASEI KOGYO KK

CYC 7

PI EP 741140 A1 961106 (9650)\* EN 16 pp

R: DE FR GB IT NL

AU 9651926 A 961114 (9702)

JP 09019300 A 970121 (9713) 13 pp

AU 694013 B 980709 (9838)

ADT EP 741140 A1 EP 96-106725 960429; AU 9651926 A AU 96-51926 960429;

JP 09019300 A JP 96-37074 960201; AU 694013 B AU 96-51926 960429

FDT AU 694013 B Previous Publ. AU 9651926

PRAI JP 96-37074 960201; JP 95-131194 950502

AN 96-499096 [50] WPIDS

AB EP 741140 A UPAB: 961211

**Prodn. of crystalline maltitol** and a

**crystalline maltitol-contg. mixt.** comprises: (1)

catalytically hydrogenating a maltose syrup contg. 30-75 wt.%

solids, of which 81-90 wt.% is maltose; (2) chromatographing the

resulting sugar alcohol syrup on a column of cation-exchange resin

to obtain a **maltitol** syrup whose solids comprise 92-99.9

(pref. 94-99.9) wt.% **maltitol**; and (3) either: (a)

concentrating the **maltitol** syrup, **crystallising**

part of the conc. syrup in the presence of seed **crystals**

to obtain **crystalline maltitol**, and spray-drying

or cooling and kneading the rest of the conc. syrup in the presence

of seed **crystals** to obtain the **crystalline**

**maltitol-contg. mixt.**; (b) concentrating and

**crystallising** part of the **maltitol** syrup, sepg.

**crystalline maltitol** from mother liquor, mixing

the mother liquor with the rest of the **maltitol** syrup, and

concentrating and spray-drying or cooling and kneading the mixt. in

the presence of seed **crystals** to obtain the

**crystalline maltitol-contg. mixt.**; or (c)

concentrating and **crystallising** the **maltitol**

syrup, sepg. **crystalline maltitol** from mother

liquor, adding seed **crystals** to the mother liquor, and

spray-drying or cooling and kneading the mother liquor to obtain the

**crystalline maltitol-contg. mixt.**

USE - The prods. are useful as sweeteners and as components of  
food, pharmaceutical and cosmetic prods.

Searcher : Shears 308-4994



09/160133

ADVANTAGE - High yields are obt'd. when the method is used,  
using inexpensive starting materials.  
Dwg.0/0

L10 ANSWER 15 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 96-435547 [44] WPIDS

DNC C96-136688

TI Porous honeycombed crystalline maltitol for use e.g. as sweetener  
and in food and pharmaceuticals - with excellent flow properties and  
stability towards humidity, but rapid rate of dissolution in water.

DC B05 B07 C03 C07 D13 D16 E17

IN CABOCHE, J; CABOCHE, J J

PA (ROQF) ROQUETTE FRERES SA

CYC 28

PI EP 735042 A1 961002 (9644)\* FR 17 pp

R: AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE

WO 9630382 A1 961003 (9645) FR 41 pp

W: AU CN CZ HU NO PL RO SK

FR 2732343 A1 961004 (9646) 27 pp

JP 08280354 A 961029 (9702) 12 pp

CA 2172886 A 960930 (9705) FR

AU 9653374 A 961016 (9706)

NO 9605023 A 961126 (9709)

CZ 9603447 A3 970416 (9722)

SK 9601471 A3 970604 (9733)

US 5651829 A 970729 (9736) 13 pp

HU 9603377 A2 970828 (9811)

BR 1100528 A3 980422 (9822)

AU 696892 B 980924 (9850)

ADT EP 735042 A1 EP 96-400650 960327; WO 9630382 A1 WO 96-FR457 960327;  
FR 2732343 A1 FR 95-3732 950329; JP 08280354 A JP 96-103308 960329;  
CA 2172886 A CA 96-2172886 960328; AU 9653374 A AU 96-53374 960327;  
NO 9605023 A WO 96-FR457 960327, NO 96-5023 961126; CZ 9603447 A3 CZ  
96-3447 960327, WO 96-FR457 960327; SK 9601471 A3 SK 96-1471 960327,  
WO 96-FR457 960327; US 5651829 A US 95-470461 950606; HU 9603377 A2  
HU 96-3377 960327, WO 96-FR457 960327; BR 1100528 A3 BR 97-1100528  
970513; AU 696892 B AU 96-53374 960327

FDT AU 9653374 A Based on WO 9630382; CZ 9603447 A3 Based on WO 9630382;  
HU 9603377 A2 Based on WO 9630382; AU 696892 B Previous Publ. AU  
9653374, Based on WO 9630382

PRAI US 95-470461 950606; FR 95-3732 950329

AN 96-435547 [44] WPIDS

AB EP 735042 A UPAB: 961124

**Crystalline maltitol** compsn. having a porous,  
honeycombed structure, a maltitol content of 92% or more  
and an apparent density of 100-700 g/l is new. Also claimed is the  
**prepn.** of a **crystalline maltitol** compsn.  
comprising: (i) **prepn.** of a maltitol syrup with  
a dry matter content of at least 50% and a maltitol

Searcher : Shears 308-4994

content of at least 92 %; (ii) finely spraying this syrup onto a fluidised bed of powdered **crystalline maltitol** at 60-110 deg.C, the wt. of the bed being at least twice that of the syrup and its **maltitol** content being at least equal to that of the syrup; (iii) drying the bed in order to obtain the desired compsn.; (iv) opt. maturing the compsn. to achieve the required level of **crystallinity** and pref. an enthalpy of fusion of 130 J/g; and (v) opt. partially recycling the **crystalline** compsn. to constitute a new bed.

The compsn. has an enthalpy of fusion of > 130 (pref. > 155) J/g and pref. contains 95 (pref. 99) % maltitol, less than 0.5% water, less than 5 (pref. less than 2) % dry wt. polyols other than maltitol and additives selected from sweeteners, colourings, flavours, perfumes, vitamins, minerals, pharmaceutical or veterinary active ingredients, fatty acid esters, organic and inorganic acids and their salts, proteins, amino acids, and enzymes.

USE - The compsn. can be used as a sweetener, excipient, base for various additives, an agent for changing the texture of a compsn. It is useful in the mfr. of soluble powders, food, pharmaceuticals, chewing gum, syrups and confectionery.

ADVANTAGE - The compsn. is stable under conditions of high humidity, and so has less tendency to adhere to the appts. contg. it. It is more rapidly dissolved in water than conventional maltitol, has excellent flow properties and is readily compressed and mixed with other prods.

Dwg.0/8

ABEQ US 5651829 A UPAB: 970909

Crystalline maltitol composition having essentially a porous and honeycombed structure, a maltitol concentration which is greater than or equal to 92%, and an apparent density of between 100 and 700 g/l.

Dwg.0/8

L10 ANSWER 16 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 96-310867 [32] WPIDS

CR 96-310868 [32]; 97-447383 [12]

DNC C96-099293

TI Sugar-free boiled sweets contg. polyol and with high water content - are highly stable and do not cause dental caries.

DC D13

IN RIBADEAU-DUMAS, G; SERPELLONI, M

PA (ROQF) ROQUETTE FRERES SA; (FRER-I) FRERES R

CYC 26

PI EP 720819 A2 960710 (9632)\* FR 6 pp

R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE

FR 2728436 A1 960628 (9633) 23 pp

AU 9540647 A 960704 (9634)

NO 9505266 A 960627 (9635)

CZ 9503388 A3 960717 (9637)

Searcher : Shears 308-4994

FI 9506166 A 960627 (9640)  
 FI 9506167 A 960627 (9640)  
 CA 2165837 A 960627 (9642)  
 CA 2165838 A 960627 (9642)  
 JP 08228688 A 960910 (9646) 6 pp  
 ZA 9510791 A 970226 (9714) 21 pp  
 US 5629042 A 970513 (9725) 5 pp  
 HU 75897 T 970528 (9805)  
 HU 75902 T 970528 (9805)  
 BR 9506065 A 971223 (9806)  
 HU 214445 B 980330 (9823)  
 NZ 280718 A 980728 (9836)

ADT EP 720819 A2 EP 95-402929 951222; FR 2728436 A1 FR 94-15648 941226;  
 AU 9540647 A AU 95-40647 951222; NO 9505266 A NO 95-5266 951222; CZ  
 9503388 A3 CZ 95-3388 951220; FI 9506166 A FI 95-6166 951221; FI  
 9506167 A FI 95-6167 951221; CA 2165837 A CA 95-2165837 951220; CA  
 2165838 A CA 95-2165838 951220; JP 08228688 A JP 95-339020 951226;  
 ZA 9510791 A ZA 95-10791 951219; US 5629042 A US 95-470462 950606;  
 HU 75897 T HU 95-3787 951222; HU 75902 T HU 95-3789 951222; BR  
 9506065 A BR 95-6065 951222; HU 214445 B HU 95-3787 951222; NZ  
 280718 A NZ 95-280718 951220

FDT HU 214445 B Previous Publ. HU 75897

PRAI US 95-470462 950606; FR 94-15648 941226; US 95-470464 950606

AN 96-310867 [32] WPIDS

CR 96-310868 [32]; 97-447383 [12]

AB EP 720819 A UPAB: 971013

Sugar-free boiled sweets comprising, w.r.t. dry matter, 5-100% of at  
 least one polyol which **crystallises** in water, have a water  
 content of > 3% and a glass transition temp. (measured at a 3.2%  
 water content) of at least 38 deg. C. Also claimed is the above  
**prod.** where the glass transition temp. is measured at the  
 effective water content. Also claimed is the **prepn.** of  
 stable sugar-free boiled sweets comprising: (i) **prepn.** of  
 a syrup contg. 5-100% of a **crystallisable** polyol selected  
 from **maltitol**, erythritol, isomalt, mannitol, sorbitol,  
 xylitol or lactitol, such that it confers a 38 deg. C glass  
 transition temp. (measured at 3.2% water content) to the sweets;  
 (ii) boiling the sugar to facilitate vitrification of a the cooked  
 mass which contains more than 3 (pref. 3.5 %) water.

ADVANTAGE - The prod. is highly stable, does not become sticky  
 or white and opaque during storage and is not hygroscopic. It does  
 not cause dental caries, neither does not lose its shape at normal  
 temp. and retains its organoleptic properties, but avoids a high  
 calorie content. Mfr. takes place at lower temperatures, giving a  
 pale colour and reducing prodn. costs.

Dwg.0/0

ABEQ US 5601866 A UPAB: 970320

Sugar-based hard boiled candy containing, on a dry matter basis,  
 less than 35% of sucrose and more than 65% of a composition of

Searcher : Shears 308-4994

carbohydrates other than sucrose, and having a water content higher than 4% and a glass transition temperature of at least 38 deg. C., said temperature being measured for a water content of about 4.5%.  
Dwg.0/0

ABEQ US 5629042 A UPAB: 970619

Sugar-free hard boiled candy containing:

more than 3% of water,

on a dry matter basis, from 5 to 100% of at least one crystallisable polyol, the balance to 100% being essentially a composition of slightly digestible or hydrogenated carbohydrates which are suitable for conferring on the sugar-free hard boiled candy a glass transition temperature at least equal to 38 deg. C., this temperature being measured for a water content of about 3.2%.  
Dwg.0/0

L10 ANSWER 17 OF 68 CBNB COPYRIGHT 1999 RSC

AN 12(46):053345 CBNB

TI Roquette plant up in France.

SO Chemical Market Reporter (4 Nov 1996) 250 (19), 8, (10-99 words)

CODEN: CMKRA5 ISSN: 0090-0907

DT Journal

LA English

PY 1996

AB Facilities to produce crystalline

maltitol, marketed as Maltisorb, have been constructed in

Lestrem, France, by Roquette.

L10 ANSWER 18 OF 68 CIN COPYRIGHT 1999 ACS

AN 25(11):11592M CIN

TI Roquette adding maltitol at Iowa facility

SO Chem. Mark. Rep., 26 Feb 1996 (960226), 249(9), p. 4. ISSN: 0090-0907; CODEN: CMKRA5.

LA English

AB Roquette America Inc. is building a new multi-purpose polyol production facility at its Keokuk, Iowa, plant location. The new facility will be dedicated to the market development of sugar-free polyols such as Maltisorb crystalline maltitol, which is used as a sugar substitute in confections, gum and baking products. "This state-of-the-art manufacturing facility coupled with our vertical integration to raw materials will give Roquette's crystalline maltitol the lowest cost position relative to all second-generation polyols," says Robert Ireland, president and CEO.

L10 ANSWER 19 OF 68 PROMT COPYRIGHT 1999 IAC

AN 96:172879 PROMT

TI POLYOLS AS FORMULATION PROBLEMS SOLVERS

Polyols possess several characteristics that make them useful in

Searcher : Shears 308-4994

many applications  
 SO Prepared Foods, (Feb 1996) pp. 39.  
 ISSN: 0747-2536.  
 LA English  
 AB Polyols possess several characteristics that make them useful in many applications. Polyols are hydrogenated mono-, di- or oligosaccharides which can be used as sugar substitutes because of their possession of some of sugar's properties. Polyols are non-cariogenic. They do not markedly increase blood sugar levels and do not produce brown colors. They increase solids content of microbial control in products, such as jams, and chelate or deactivate oxidizing metals to different degrees. Maltitol, sorbitol and lactitol reduce the freezing point of a food matrix just like sucrose, making them good ingredients in products such as frozen dairy desserts. Crystalline polyols are employed also in tabletting.

L10 ANSWER 20 OF 68 PROMT COPYRIGHT 1999 IAC

AN 96:122409 PROMT  
 TI Roquette Adding Maltitol at Iowa Facility  
 Building a new multi-purpose polyol production facility at its Keokuk, Iowa, plant location  
 SO Chemical Marketing Reporter, (26 Feb 1996) pp. 4.  
 ISSN: 0090-0907.  
 LA English  
 WC 101  
 \*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*  
 AB Roquette America Inc. is building a new multi-purpose polyol production facility at its Keokuk, Iowa, plant location. The new facility will be dedicated to the market development of sugar-free polyols such as Maltisorb crystalline maltitol, which is used as a sugar substitute in confections, gum and baking products.  
 "This state-of-the-art manufacturing facility coupled with our vertical integration to raw materials will give Roquette's crystalline maltitol the lowest cost position relative to all second-generation polyols," says Robert Ireland, president and CEO.  
 Roquette also manufactures xylitol, another polyol sweetener. The company supplies polyols to the food, beverage, pharmaceutical, personal care and industrial markets.  
 THIS IS THE FULL TEXT: COPYRIGHT 1996 Schnell Publishing Company Inc.

L10 ANSWER 21 OF 68 PROMT COPYRIGHT 1999 IAC

AN 96:240790 PROMT  
 TI SWEETENERS: Sugar Alcohol Mimics Sucrose  
 Searcher : Shears 308-4994

SO Food Ingredient News, (1 Apr 1996) pp. N/A.  
ISSN: 1070-1788.

LA English

WC 376

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB Maltitol, a sugar alcohol, shares many of the same properties as sucrose, making it an ideal substitute in sugarless confections. Maltitol is classified in the U.S. as a carbohydrate, allowing the designation "no added sugar" to products formulated with it. Another advantage is that the reduced caloric value of 3 cal/g may be used instead of the 4 cal/g for sugars/carbohydrates. In Europe, it is considered that all polyols have a value of 2.4 cal/g. Maltitol is made by transforming maltose via hydrogenation. It can be directly substituted for sucrose in many applications with little or no alteration of the original process. The sweetening power of maltitol is 90% that of sucrose, the hygroscopicity is low, and the molecular weight is 344, while sucrose's molecular weight is 342. The conching temperature for chocolate (80C) is identical for maltitol and sucrose. The melting point of maltitol is lower (147C vs. 182C), and the solubility of maltitol is slightly lower (60% vs. 66%).

The trademarked Maltisorb is the white crystalline powder form of maltitol marketed by Roquette America, Inc. (1417 Exchange St., P.O. Box 6647, Keokuk, IA 52632-6647; Tel: 800/553-7035, Fax: 319/526-2474). Maltisorb has a pleasant sweet flavor with no aftertaste. The company, which is the leading producer of polyols, claims that Maltisorb is the highest purity crystalline maltitol available.

This product can be used in sugarfree chocolate products, jams and jellies, sugarfree baked items, frozen desserts, and as a dusting agent for sugarfree chewing gum. Its low hygroscopicity, high melting point, anhydrous crystalline form, and sucrose-like sweetness, make Maltisorb an ideal substitute for sucrose in sugarfree chocolate because traditional processes can be used. In baked goods, Maltisorb mimics sucrose in its abilities to provide softness and maintain moisture. Another advantage of Maltisorb is that it is noncariogenic.

Roquette offers Maltisorb in 55 lb. bags. In addition to maltitol and the trademarked Lycasin maltitol syrup, Roquette's polyol line includes the trademarked Neosorb sorbitol, the trademarked Pearlitol mannitol, and the trademarked Xylisorb xylitol. Roquette's worldwide production facilities offer more than 600 carbohydrate derivatives. In order to begin producing polyols at the plant located in Keokuk, IA, Roquette currently is constructing a multipurpose production facility to manufacture Maltisorb and other polyols.

THIS IS THE FULL TEXT: COPYRIGHT 1996 Business Communications Co, Inc.

09/160133

AN 95-247311 [33] WPIDS  
DNC C95-113501  
TI Sugar-free confectionery prods. with grainy texture -  
contg. **maltitol** or **xylitol** in fine **crystalline**  
**form..**  
DC D13  
IN RIBADEAU-DUMAS, G; SERPELLONI, M  
PA (ROQF) ROQUETTE FRERES SA; (RIBA-I) RIBADEAU-DUMAS G  
CYC 22  
PI EP 662285 A1 950712 (9533)\* FR 16 pp  
R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE  
FR 2714796 A1 950713 (9533) 22 pp  
AU 9510099 A 950720 (9537)  
NO 9500084 A 950711 (9537)  
CA 2139812 A 950711 (9540)  
FI 9500087 A 950711 (9540)  
JP 08033451 A 960206 (9615) 11 pp  
US 5580601 A 961203 (9703) 12 pp  
AU 682912 B 971023 (9750)  
IL 112287 A 981030 (9905)  
ADT EP 662285 A1 EP 95-400039 950109; FR 2714796 A1 FR 94-167 940110; AU  
9510099 A AU 95-10099 950109; NO 9500084 A NO 95-84 950109; CA  
2139812 A CA 95-2139812 950109; FI 9500087 A FI 95-87 950109; JP  
08033451 A JP 95-2178 950110; US 5580601 A US 95-369809 950109; AU  
682912 B AU 95-10099 950109; IL 112287 A IL 95-112287 950109  
FDT AU 682912 B Previous Publ. AU 9510099  
PRAI FR 94-167 940110  
AN 95-247311 [33] WPIDS  
AB EP 662285 A UPAB: 950824  
Confectionary prods. contain a sweetener comprising 50-93  
wt. % **maltitol** or **xylitol** in the form of  
**crystals** smaller than 60 microns. The prods. are  
produced by: (A) cooking an aq. soln. contg. at least 75% of  
the sweetener, adding seed **crystals** of **maltitol**  
or **xylitol** in an amt. of 0.1-25%, working the mixt. to effect  
**crystallisation** and opt. aeration, and shaping and packaging  
the prod. or (B) mixing seed **crystals** of  
**maltitol** or **xylitol** at 45-90 deg.C. with the rest of the  
sweetener in the form of a conc. syrup, working the mixt.  
to effect **crystallisation** and opt. aeration, and shaping  
and packaging the prod.  
ADVANTAGE - The prods. have a grainy texture like that of  
similar prods. contg. sucrose crystals but are sugar-free.  
Dwg.0/4  
ABEQ US 5580601 A UPAB: 970115  
Grainy confectionery product comprising a sweetening  
component containing **maltitol**, wherein the  
**maltitol** constitutes from 50 to 93% by weight of the  
sweetening component, and wherein the **maltitol** present in  
Searcher : Shears 308-4994

the **crystallized** state in said confectionery **product** is essentially in the **form** of **crystals** with a size of less than 60 microns.  
Dwg. 0/4

L10 ANSWER 23 OF 68 PROMT COPYRIGHT 1999 IAC

AN 96:296413 PROMT

TI Reduce chocolate calorie content with sugar alternative

SO Emerging Food R&D Report, (1 Sep 1995) pp. N/A.  
ISSN: 1050-2688.

LA English

WC 378

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB Using sugar alternatives will help you optimize sugar-free chocolates. European investigators (Eridania Begin-Say, Vilvoorde R&D Center, Cerestar Euro Food Center, Havenstraat 84, B-1800 Vilvoorde, Belgium) have used a **crystalline** polyhydric alcohol obtained by the hydrogenation of maltose to obtain a 12% to 15% reduction in calories in chocolate. The substance, **maltitol**, can be **produced** by different techniques, such as solidification or **crystallization**. These processes yield **maltitol** powders containing different **maltitol** contents and compositions. Powders containing 99% **maltitol** have the ideal sensory and physicochemical properties needed to substitute for sucrose in sugar-free chocolate. Tests indicate that dark and milk chocolate with satisfactory flavors can be **produced** with anhydrous **crystalline maltitol** powder using conventional **manufacturing** techniques. The **product**, called Maltitol CH, contains at least 99% **maltitol**. It also contains water, reducing sugars and ash. The powder is composed of sweet-tasting colorless clear **crystals**. Higher conching temperatures than generally recommended for other sugar alcohols can be used without recrystallization and increased viscosity. Dry conching at high temperature is also advantageous in terms of production technology and flavors. Well-tempered molded chocolate produced with maltitol powder is nonhygroscopic and offers excellent gloss and good breaking characteristics. The smooth melting profile and natural sweetness of chocolate with maltitol is similar to a sucrose-based product. Maltitol is a suitable sugar-free alternative, making possible up to a 15% reduction in calories in the end product, according to researchers. This is based on the European Community's calorie value for polyols: 2.4 kcal/g. A 50-50 combination of maltitol with such low-calorie bulking agents as polydextrose and inulin will lead to further calorie reductions up to 23%. Cocoa butter content also is reduced. When combining maltitol with these polysaccharides, you'll have to adapt conching conditions to maintain high conching temperatures. This dry-wet

Searcher : Shears 308-4994



conching procedure also gives a good workability, normal chocolate mass rheology and yields good sensory characteristics. Scientists say that a powder containing at least 99% maltitol makes possible dry conching up to 80 C. Under these conditions, the refined chocolate mass is agitated mechanically without adding extra fat.

THIS IS AN EXCERPT: COPYRIGHT 1995 Food Technology Intelligence Report, Inc.

L10 ANSWER 24 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 94-307642 [38] WPIDS

DNC C94-140085

TI Continuous mfr. of maltitol slurry - by pouring maltitol aq. soln. with specified maltitol purity in solid into container continuously and stirring.

DC D13 D17 E13

PA (TOAG) TOWA KASEI KOGYO KK

CYC 1

PI JP 06234786 A 940823 (9438)\* 6 pp

ADT JP 06234786 A JP 93-43377 930209

PRAI JP 93-43377 930209

AN 94-307642 [38] WPIDS

AB JP06234786 A UPAB: 941115

Continuous mfr. of a maltitol slurry comprises pouring 92-98% maltitol aq. soln. with a maltitol purity in the solid of at least 88 wt.% into a container continuously and stirring the soln.

ADVANTAGE - The method produces a required number of maltitol crystals in the maltitol soln. in a short time continuously with good reproducibility as required. If the obtd. maltitol slurry is crystallised, anhydrous crystalline maltitol prods. and maltitol non-centrifugal crystalline prods. are obtd. The crystallines can be used as seed crystals in conventional maltitol prodn. method.

In an example, 40 l/hr. of 96.1% aq. soln. of maltitol with a purity of 95.3% was supplied continuously through the upper portion into a 20 l. container with an effective volume of 10 l. and an inside dia. of 30 cm. contg. 10 l. of the aq. soln. at 105 deg.C, stirred at 300 rpm. (peripheral velocity of 113 m/min.) with 40 l. of the aq. contents in the container being discharged from the lower portion continuously. After 2 min., maltitol crystals begin to generate in the container soln., maltitol slurry obtd. at 0.5, 1 or 2 hrs. contained about 30% of crystals and the crystals were suitable as seed crystals for maltitol crystallisation.  
Dwg.0/0

L10 ANSWER 25 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 94-105984 [13] WPIDS

Searcher : Shears 308-4994

09/160133

DNC C94-048588

TI Sugar-free chewing gum with good chew-feeling - contains maltitol powder of specified particle size and comprises at least 50 per cent anhydrous maltitol..

DC D13

PA (TOAG) TOWA KASEI KOGYO KK

CYC 1

PI JP 06054649 A 940301 (9413)\* 4 pp

ADT JP 06054649 A JP 92-229398 920806

PRAI JP 92-229398 920806

AN 94-105984 [13] WPIDS

AB JP06054649 A UPAB: 940517

Crystal maltitol powder is contained in 40-80 wt% by weight of produced chewing gum. The crystal maltitol powder has grain size of 20-60 microns, maltitol fineness of 95-100 wt% and contains 50 wt% or more of anhydrous crystal maltitol.

USE - Sweet taste quickly exudes from gum when chewing it, and the sweet taste can be kept for a long time.

Dwg.0/0

L10 ANSWER 26 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 94-265195 [33] WPIDS

DNC C94-121284

TI Controlling spread of crystallisation of maltitol in confectionery - by addn. of cpds. above specific mol. wt., esp. polysaccharide(s) opt. hydrogenated, giving highly sweetened, non-cariogenic confectionery.

DC D13

IN FOUACHE, C; RIBADEAU-DUMAS, G; SERPELLONI, M

PA (ROQF) ROQUETTE FRERES SA

CYC 23

PI EP 611527 A1 940824 (9433)\* FR 14 pp

R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE

FR 2701357 A1 940819 (9434) 21 pp

AU 9455149 A 940818 (9435)

FR 2701633 A1 940826 (9435)

NO 9400512 A 940817 (9436)

CA 2115801 A 940817 (9439)

FI 9400695 A 940817 (9441)

JP 06343416 A 941220 (9510) 12 pp

HU 67115 T 950228 (9514)

ZA 9401057 A 950426 (9522) 32 pp

US 5470591 A 951128 (9602) 9 pp

AU 668262 B 960426 (9624)

EP 611527 B1 970528 (9726) FR 15 pp

R: AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE

DE 69403356 E 970703 (9732)

ES 2104294 T3 971001 (9746)

Searcher : Shears 308-4994

ADT EP 611527 A1 EP 94-400321 940214; FR 2701357 A1 FR 93-1738 930216;  
 AU 9455149 A AU 94-55149 940215; FR 2701633 A1 FR 93-1864 930218; NO  
 9400512 A NO 94-512 940215; CA 2115801 A CA 94-2115801 940216; FI  
 9400695 A FI 94-695 940215; JP 06343416 A JP 94-19616 940216; HU  
 67115 T HU 94-443 940216; ZA 9401057 A ZA 94-1057 940216; US 5470591  
 A US 94-197476 940216; AU 668262 B AU 94-55149 940215; EP 611527 B1  
 EP 94-400321 940214; DE 69403356 E DE 94-603356 940214, EP 94-400321  
 940214; ES 2104294 T3 EP 94-400321 940214

FDT AU 668262 B Previous Publ. AU 9455149; DE 69403356 E Based on EP  
 611527; ES 2104294 T3 Based on EP 611527

PRAI FR 93-1738 930216; FR 93-1864 930218

AN 94-265195 [33] WPIDS

AB EP 611527 A UPAB: 941010

Molecules with mol. wt. above 1300 are used as agent to control the spread of crystallisation of maltitol in confectionery.

The molecules pref. have mol. wt. above 2000 (above 3000), and are hydrogenated, (un)branched polysaccharides obtd. from native or modified starch, polysaccharides, opt. hydrogenated, obtd. by hydrolysis of a dextrin, or polyglucoses, pref. hydrogenated. A **crystallisable maltitol** syrup, for **prepn**

. of confectionery, has a bimodal compsn., with more than 3%, w.r.t. dry matter of molecules with mol. wt. above 1300, esp. contg. 78-95% (80-95%) of **maltitol**, less than 5% of hydrogenated monosaccharides with mol. wt. not above 182, and 3-19% of molecules with mol. wt. above 1300.

A crystallisable maltitol syrup contains more than 3%, w.r.t. dry matter, of molecules with mol. wt. above 1300, esp. with 78-95% (80-95%) of maltitol, less than 5% of hydrogenated monosaccharides of mol. wt. not above 182, and 3-19% of molecules with mol. wt. above 1300 (pref. 7-19% of molecules with mol. wt. above 3000).

**ADVANTAGE** - Confectionery which is cheaper, highly sweetened with maltitol syrup, and non-cariogenic, with low hygroscopicity, high quality and good stability, can be obtd.

Dwg.0/0

ABEQ US 5470591 A UPAB: 960115

In a process of **manufacturing** a **maltitol** based confectionery, the improvement comprising adding an agent for controlling propagation of **crystallization** of **maltitol**, said agent consisting of molecules having a molecular weight greater than about 1,300 daltons, said molecules being selected from the group consisting of:

linear or branched hydrogenated polysaccharides obtained from native or modified starch,

non hydrogenated or hydrogenated polysaccharides obtained from hydrolysis of dextrin,

non hydrogenated polyglucoses or hydrogenated polyglucoses.

Dwg.0/0

ABEQ EP 611527 B UPAB: 970626

Use, as agent for controlling propagation of crystallization of

Searcher : Shears 308-4994

maltitol in a confectionery, of molecules having a molecular weight greater than 1,300 Daltons.

Dwg.0/0

L10 ANSWER 27 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 94-184699 [23] WPIDS

DNC C94-083683

TI Hair treatment compsn. for permanent waving - comprising keratin-reducing substance and nonionic amphiphatic cpd. contg. at least one alk(en)yl gp..

DC D21 E19

IN TABATA, Y; TANIMURA, T

PA (KAOS) KAO CORP

CYC 3

PI DE 4340762 A1 940601 (9423)\* 24 pp

JP 06157255 A 940603 (9427) 20 pp

US 5665338 A 970909 (9742) 13 pp

ADT DE 4340762 A1 DE 93-4340762 931130; JP 06157255 A JP 92-320348 921130; US 5665338 A Cont of US 93-151844 931115, US 95-550517 951030

PRAI JP 92-320348 921130

AN 94-184699 [23] WPIDS

AB DE 4340762 A UPAB: 940727

New hair treatment compsn. (I) comprising a keratin-reducing substance (A), and a nonionic amphiphatic cpd. (B) contg. at least one alk(en)yl gp. per mol. and having a HLB value of 2-12. (B) or a mixt. thereof retains a liq. crystal structure in water at 0-50 deg. C.

(A) is pref. thioglycolic acid, cystine, thiolactic acid, sulphurous acid, bisulphites, thioglycerine alkylethers, mercaptoalkylamides, or their salts or their derivs. (I) pref. comprises 0.1-20.0 wt.% (w.r.t. total compsn). (A). (B) is pref. glycerinated polyols, methyl-branched fatty acid esters, branched fatty acid glycerine glycolipids, alkyltrimethylols or alkylol trimethylolamides.

USE/ADVANTAGE - Useful as (precision) (permanent) wave, high styling or permanent wave-correcting formulations. The treated hair shows excellent shine and bounce and the compsns. have a strong conditioning effect, reduce hair damage, reduced hair-splitting and have a high moisturising capability.

Dwg.0/0

ABEQ US 5665338 A UPAB: 971021

A hair treatment composition consisting essentially of the following components: (A) at least one keratin-reducing substance; (B) at least one nonionic amphiphatic compound which contains at least one long-chain branched alkyl or alkenyl group per molecule, and which has an HLB of 2-12, said compound itself or a mixture of said compound and water maintaining a liquid crystal structure at a temperature ranging from 0 deg. -5 deg. C. which is at least

Searcher : Shears 308-4994

one compound selected from the group consisting of compounds designated as (B-1) through (B-4): (B-1): glycerylated polyols of formula Aa(G) (1) wherein G is the residue in which a hydroxyl group(s) has been eliminated from a polyol selected from the group consisting pentaerythritol, sorbitol, maltitol, glucose, and fructose; A denotes  $\text{CH}_2\text{CHOHCH}_2\text{OR}_1$  and/or  $-(\text{HOCH}_2)\text{CH}(\text{CH}_2\text{OR}_1)$  in which  $\text{R}_1$  is a branched alkyl or alkenyl group having 10-36 carbon atoms, and a is an integer of one up to the total number of the hydroxyl groups in the polyol;

(B-2): methyl-branched fatty acid esters of formula (2): wherein  $b_1$  and  $b_2$  are individually zero or an integer of 1-33, and the sum of  $b_1$  and  $b_2$  is 6-33; (B-3): branched fatty acid glyceroglycolipids of formula (3): wherein  $\text{R}_2$  is  $(\text{CH}_2)c_1\text{CH}(\text{CH}_3)(\text{CH}_2)c_2\text{CH}_3$  or  $\text{CH}_2\text{CH}(\text{CH}_2(\text{CH}_2)c_4\text{CH}_3)\text{CH}(\text{CH}_2)c_3\text{CH}_3$  in which  $c_1$  and  $c_2$  are individually zero or an integer of 1-33, the sum of  $c_1$  and  $c_2$  is 6-33,  $c_3$  and  $c_4$  are individually zero or an integer of 1-31, and the sum of  $c_3$  and  $c_4$  is 4-31; and (B-4): trimethylolamides of formula (5):  $\text{R}_3\text{-CONHC}(\text{CH}_2\text{OH})_3$  wherein  $\text{R}_3$  is a linear or branched alkyl group having 6-22 carbon atoms;

a compound of the formula: (4) wherein R is isostearyl;

(C) water; and (D) at least one additive selected from the group consisting of surfactants, oily substances, moisturizers, hair protecting agents, feel improvers, colouring matter, perfume bases, thickeners, solubilizing agents, ultraviolet absorbents, anti-phlogistics and hair growth ingredients.  
Dwg.0/0

L10 ANSWER 28 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 94-049812 [07] WPIDS

DNC C94-022538

TI Prepn. of highly pure crystalline dextrose mono hydrate - from a sugar syrup contg. small amts. of fructose.

DC D17 E13

IN MINNE, J P

PA (CERE-N) CERESTAR HOLDING BV

CYC 1

PI DE 4226049 A1 940210 (9407)\* 3 pp

ADT DE 4226049 A1 DE 92-4226049 920806

PRAI DE 92-4226049 920806

AN 94-049812 [07] WPIDS

AB DE 4226049 A UPAB: 940329

Prepn. of crystalline dextrose monohydrate (DM) which is at least 99.5% pure, comprises crystallisation of DM from a sugar syrup contg. DM and a small amt. of fructose.

The syrup contains up to 10 wt.% fructose. The mother liquor, remaining after the crystallisation, is at least partially recycled to the crystallisation process. The dextrose-contg. syrup is a mixt. of recycled mother liquor, a dextrose-contg. syrup (which is free of fructose), and dextrose/fructose mixt..

Searcher : Shears 308-4994

USE/ADVANTAGE - No specific uses are given for the highly pure **crystalline prod.** By **products** in the process are useful, e.g. as sources for sorbitol/maltitol syrups or in fermentation. The **crystal** has uniform size due to the low viscosity of the melt from which is **produced**

Dwg.0/0

L10 ANSWER 29 OF 68 PROMT COPYRIGHT 1999 IAC

AN 94:197329 PROMT

TI Maltitol: a new choice for sugar-free candies

SO Candy Industry, (Apr 1994) pp. 46.

ISSN: 0745-1032.

LA English

WC 1381

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB by Lon Wilson

I have been associated with the use of ingredients in the **formulations** and **manufacture** of confectionery, confectionery coatings, chocolate, and gum for about 20 years. Recently I became excited about the use of pure Maltisorb(R) **crystalline maltitol** in sugar-free and no added sugar applications.

Maltitol is a sugar alcohol (polyol) that is not a mono- or disaccharide, and is therefore not classified as sugar(s) by the Nutrition Labeling and Education Act (NLEA) of 1993. It can be used to create sugar-free or no added sugar content confectionery consistent with new FDA regulations.

These regulations offer formulators opportunities to create products that meet customers' requirements. Maltitol is one product that confectionery formulators need to know about in order to develop products that fit into these categories.

A comparison of the characteristics of sucrose and Maltisorb(R) **crystalline maltitol** is given in Figure 1. Maltitol's physical and chemical similarities to sucrose allow replacement of sucrose with practically no process changes.

All these similar properties of **maltitol** to sucrose allow **crystalline maltitol** to replace sucrose with modest processing or **formulation** changes. Thus it allows the **production** of a sugarless confectionery **product** that is so close to the regular sucrose **product** that consumers will be hard pressed to tell the difference.

Maltitol is a hydrogenated disaccharide obtained by the catalytic hydrogenation of maltose. Hydrogenation of a maltose syrup results in a maltitol syrup that is then purified, crystallized, and dehydrated.

Roquette's patented method has been developed to yield the highest

Searcher : Shears 308-4994

purity crystalline maltitol available.

Maltisorb(R) is a non-cariogenic, white crystalline powder with high organic and mineral purity. It has a pleasant sweet taste with no aftertaste.

Two important features of Roquette crystalline maltitol are its purity and subsequent high melting point. Maltisorb(R) contains 98 percent maltitol. Roquette's Maltisorb(R) crystalline maltitol has a melting point of 147 deg C (297 deg F), allowing conching to be performed at normal temperatures, which are typically up to 80 deg C (176 deg F).

THIS IS AN EXCERPT: Copyright 1994 Advanstar Communications Inc.

L10 ANSWER 30 OF 68 PROMT COPYRIGHT 1999 IAC

AN 94:303607 PROMT

TI Acesulfame K guarantees solubility, stability of sweets

SO Candy Industry, (Jun 1994) pp. 83.

ISSN: 0745-1032.

LA English

WC 1597

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB by Nicole Staniec

High intensity sweetener gives consumers good tasting, reduced-calorie/no -sugar-added treats

Sugar-free. Low-fat. Reduced-calorie. These words have become synonymous with the American diet. This, however, is not necessarily true in the confections industry.

One reason may be that before the introduction of high intensity sweeteners, the technology to make good tasting, reduced-calorie/no-sugar-added candy was not available.

That all changed in September of 1992, when the FDA revised its Compliance Policy Guide to allow the use of non-nutritive sweeteners in candy (57 FR 42587).

Soon after this policy change, acesulfame potassium (ACK) became the first high intensity sweetener to be approved for use in confections in the United States (57 FR 57960).

ACK was discovered in 1967 by a German scientist doing research for Hoechst AG. While conducting an experiment, he noticed a sweet taste on his fingers. The compound was later identified as 5,6-dimethyl-1,2,3-oxathiazine-4(3H) -one-2,2 dioxide.

More research showed the potassium salt of the 6-methyl dioxide ring to have the most acceptable sensory characteristics.

Tables show Acesulfame K's dry stability at room temperature, effect of storage temperatures, stability in various thermal processes, formulation & processing of hard candies and of gummi bears.

THIS IS AN EXCERPT: Copyright 1994 Advanstar Communications Inc.

L10 ANSWER 31 OF 68 BIOTECHDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
Searcher : Shears 308-4994

AN 93-07077 BIOTECHDS  
 TI Production and purification of 3-Hydroxy-4-(1H)-pyran-4-one and 3,5-dihydroxy-4(1H)-pyran-4-one using *Gluconobacter rubiginosus*; application as a maltitol precursor  
 PA Yakurigaku-Cent.Res.Inst.  
 PI JP 05049490 2 Mar 1993  
 AI JP 91-206785 19 Aug 1991  
 PRAI JP 91-206785 19 Aug 1991  
 DT Patent  
 LA Japanese  
 OS WPI: 93-111890 [14]  
 AN 93-07077 BIOTECHDS  
 AB **Production** of 3-hydroxy-4(1H)-pyran-4-one (I) and 3,5-dihydroxy-4(1H)-pyran-4-one (II) comprises oxidative fermentation of 1-alkyl-substituted-aldopentose. The resulting **product** is then heated in acidic conditions. (I) and (II) are useful for the synthesis of **maltitols**, which are useful as food flavors and raw materials for cosmetics. In an example, *Gluconobacter rubiginosus* IFO 3244 was grown in a culture medium containing 3.64 g/l alpha-methylxyloside, 1.5 g/l glycerol, 1.5 g/l yeast extract, 1.5 g/l polypeptone and 0.75 g/l CaCO<sub>3</sub> at 30 deg for 6 days. The culture was filtered and the filtrate was adjusted to pH 1.0 and heated at 120 deg for 30 min. The filtrate was concentrated in vacuo and extracted twice with chloroform. The crude **crystals** were recrystallized from 50% methanol to **produce** 1 g white needle-like **crystals** which were identified as (I) by IR. The original filtrate was subjected to **preparative** TLC and the fraction with a lower R<sub>f</sub> than (I) was collected and extracted with chloroform and concentrated in vacuo. It recrystallized from 50% methanol to **produce** 0.03 g (II) (IR) in a white **crystallized form**. (6pp)

L10 ANSWER 32 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 93-296856 [38] WPIDS  
 DNC C93-131531  
 TI Powdery crystalline maltitol mfr. - by addn. of seed crystals to aq. soln. of maltitol and continuous application of shearing force.  
 DC B07 D13 E17  
 IN KANNO, T; KUNIMI, Y; TABATA, A; UENO, R  
 PA (UENS) UENO SEIYAKU OYO KENKYUSHO KK  
 CYC 7  
 PI EP 561585 A1 930922 (9338)\* EN 13 pp  
 R: DE FR GB  
 CA 2091616 A 930918 (9349)  
 JP 06007110 A 940118 (9407) 6 pp  
 US 5304388 A 940419 (9415) 5 pp  
 NZ 247157 A 940427 (9420)  
 EP 561585 B1 970528 (9726) EN 8 pp  
 Searcher : Shears 308-4994



R: DE FR GB

DE 69310968 E 970703 (9732).

ADT EP 561585 A1 EP 93-301933 930315; CA 2091616 A CA 93-2091616 930315;  
 JP 06007110 A JP 93-56857 930317; US 5304388 A US 93-32785 930317;  
 NZ 247157 A NZ 93-247157 930315; EP 561585 B1 EP 93-301933 930315;  
 DE 69310968 E DE 93-610968 930315, EP 93-301933 930315

FDT DE 69310968 E Based on EP 561585

PRAI JP 92-60129 920317

AN 93-296856 [38] WPIDS

AB EP 561585 A UPAB: 931123

Mfr. of powdery or granular crystalline maltitol is effected by (a) adding seed crystals of maltitol at a temp. lower than their m.pt. to an aq. soln. of maltitol with 1-15 wt. % moisture content; (b) kneading the mixt. in the presence or absence of additives selected from fat, oil and surface active agent; and (c) continuously applying a shearing force to the kneaded mass.

The purity of the powdery or granular crystalline maltitol is not less than 80 wt. % on solid matter basis.

USE/ADVANTAGE - Maltitol is used as a sweetening agent in low calorie foods, diet foods, low cariogenic foods and foods for diabetics, and in pharmaceuticals. The process is simple and of high efficiency. High yields of powdery crystalline maltitol are obtd. The time required is short (1-120 min).

Dwg.0/0

ABEQ US 5304388 A UPAB: 940531

Prodn. of powdery or granular crystalline maltitol comprises seeding an aq. soln. of maltitol (1-15 wt.% aq.) with maltitol crystals at a temp. lower than the m.pt. of the crystals, e.g. at 50-120 deg. C; then kneading, opt. in the presence of a fat, oil or surfactant (not more than 30 wt.% total additives), with continuous shearing.

USE/ADVANTAGE - The prod. is a sweetening agent for low energy goods, diet foods, low cariogenic foods and foods for diabetics. The crystalline prod. is not deliquescent or hygroscopic, which facilitates its handling for the prodn. of food compsns.

Dwg.0/0

ABEQ EP 561585 B UPAB: 970626

A method for manufacturing powdery or granular crystalline maltitol, whic comprises adding seed crystals of maltitol at a temperature lower than the melting point of the seed crystals of maltitol to an aqueous solution of maltitol having a moisture content of 3-10% by weight, kneading the mixture in the presence of absence of additives selected from the group consisting of a fat, an oil and a surface-active agent; and continuously applying a shearing force to the kneaded mass so as to produce powdery or granular crystalline maltitol from the mass.

Dwg.0/0

L10 ANSWER 33 OF 68 MEDLINE DUPLICATE 1  
 AN 94052847 MEDLINE  
 DN 94052847  
 TI Safety assessment of hydrogenated starch hydrolysates.  
 AU Modderman J P  
 SO REGULATORY TOXICOLOGY AND PHARMACOLOGY, (1993 Aug) 18 (1) 80-114.  
 Journal code: RBH. ISSN: 0273-2300.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199402  
 AB Hydrogenated starch hydrolysates (HSH) are mixtures of polyhydric alcohols such as sorbitol, maltitol, and higher-order sugar alcohols. They are important food ingredients because of their sweetness, low cariogenic potential, and useful functional properties. These traits permit HSH products to be used as viscosity or bodying agents, humectants, crystallization modifiers, and rehydration aids. A substantial body of safety information is available for HSH products and their individual chemical components. Based on this information, the substances have received favorable evaluations from international expert safety organizations such as the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and European Community's Scientific Committee for Food. This same information has been submitted to the United States Food and Drug Administration (FDA) as part of the petitioning process to affirm the generally recognized as safe (GRAS) status of these substances. Some of the animal feeding studies important to a full safety assessment for HSH substances, while long available to international safety expert organizations and governmental organizations, have never been published in the literature. Three of these studies, i.e., a chronic (24-month) feeding study, a multigeneration reproduction study, and a teratology study, are reported on this article, together with metabolic information. The results of this evaluation establish HSH substances as safe food ingredients.

L10 ANSWER 34 OF 68 PROMT COPYRIGHT 1999 IAC  
 AN 93:895258 PROMT  
 TI Sweet OPTIONS  
 There are just 3 low-calorie sweeteners approved for use in the US  
 SO Food Engineering, (Oct 1993) pp. 101.  
 ISSN: 0193-323X.  
 LA English  
 AB There are just 3 low-calorie sweeteners approved for use in the US, although Japan and Europe have many more approved sweeteners available and Canada recently approved sucralose. McNeil Specialty  
 Searcher : Shears 308-4994

**Products**, maker of the Splenda sucralose brand, notes that sucralose is made from sugar and therefore tastes like it. However, it has no calories and can be used in baking and cooking. Pfizer's alitame has 2,000 X the sweetness of sugar and has a longer shelf life than aspartame. Lacitol, made by American Xyrofin, has a much milder sweetness and is 33% as sweet as sugar. **Maltitol** is another low-calorie sweetener for chocolate and is used in the form of Maltisorb by Roquette. NutraSweet's expired patent for aspartame, the new category of the mid-cal soft drink, blending of low-cal sweeteners, and Domino Sugar's co-crystallization process, which improves the functionalities of sugar, are discussed.

L10 ANSWER 35 OF 68 PROMT COPYRIGHT 1999 IAC

AN 93:743823 PROMT

TI Acesulfame K sweetens every sweet

SO Candy Industry, (Jul 1993) pp. 50.

ISSN: 0745-1032.

LA English

WC 1555

\*FULL TEXT IS AVAILABLE IN THE ALL FORMAT\*

AB by Dr. Donald Johnson and Nicole Lopez

Since the FDA's approval of acesulfame K for use in confections in January 1993, the unique properties of this high-intensity sweetening ingredient have enabled confectioners to begin developing a wide variety of sugar-free and reduced-calorie confections.

Acesulfame K (ACK) can be used in confections, hard and soft candies (including chocolate), cough drops, and breath mints. Its heat stability, high solubility, sweetness profile, synergy with nutritive and other non-nutritive sweeteners, and storage stability provide excellent opportunities for the development of sugar-free and/or reduced calorie confections.

Numerous scientific studies have demonstrated that ACK is safe for all segments of the population, and no health warning/information statement is required on product labels. It is also non-cariogenic.

ACK's ingredient stability covers many aspects; stability as a dry material, stability during processing, stability with other ingredients, microbiological stability and stability during prolonged storage. Acesulfame K, in the dry form or in dry food products, remains stable for years if stored in a dry place.

Acesulfame K is also stable during heat processing applications, such as those associated with confection manufacture.

In sugar-free confections, which use polyols as the bulking agents, ACK is very soluble. As an example, ACK is approximately 7.5 percent soluble in sorbitol, which is a much higher connection than is needed for sweetness.

THIS IS AN EXCERPT: Copyright 1993 Advanstar Communications Inc.

L10 ANSWER 36 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

Searcher : Shears 308-4994

09/160133

AN 92-041501 [05] WPIDS  
DNC C92-018195  
TI Molasses-contg. maltitol crystals with low oil  
absorption capacity - and high apparent specific gravity are  
prepd. by cooling-kneading aq. soln. then extrusion of obt'd.  
magma.  
DC D17  
IN ISHII, Y; KATO, K; KAWASHIMA, S; MAGARA, M  
PA (TOAG) TOWA CHEM IND CO LTD; (TOAG) TOWA CHEM IND CO LT; (TOAG) TOWA  
KASEI KOGYO KK  
CYC 33  
PI WO 9200309 A 920109 (9205)\*  
RW: AT BE CH DE DK ES FR GB GR IT LU NL OA SE  
W: AU BB BG BR CA CH DK ES FI GB HU JP KR LK LU MC MG MW NL NO  
PL RO SD SE SU US  
AU 9178919 A 920227 (9218)  
FI 9200807 A 920224 (9221)  
EP 491953 A1 920701 (9227) EN 15 pp  
R: BE DE FR GB IT NL  
JP 03509213 X 920702 (9233) 44 pp  
AU 643528 B 931118 (9402)  
US 5354856 A 941011 (9440) 10 pp  
JP 07014953 B2 950222 (9512) 10 pp  
EP 491953 A4 921202 (9524)  
JP 08280400 A 961029 (9702) 10 pp  
US 5583215 A 961210 (9704) 10 pp  
EP 491953 B1 970423 (9721) EN 16 pp  
R: BE DE FR GB IT NL  
DE 69125803 E 970528 (9727)  
ADT FI 9200807 A WO 91-JP690 910523, FI 92-807 920224; EP 491953 A1 EP  
91-909723 910523, WO 91-JP690 910523; JP 03509213 X JP 91-509213  
910523, WO 91-JP690 910523; AU 643528 B AU 91-78919 910523; US  
5354856 A WO 91-JP690 910523, US 92-836017 920224; JP 07014953 B2 JP  
91-509213 910523, WO 91-JP690 910523; EP 491953 A4 EP 91-909723  
; JP 08280400 A Div ex JP 91-509213 910523, JP 96-48453 910523; US  
5583215 A CIP of WO 91-JP690 910523, CIP of US 92-836017 920224, US  
94-280813 940726; EP 491953 B1 EP 91-909723 910523, WO 91-JP690  
910523; DE 69125803 E DE 91-625803 910523, EP 91-909723 910523, WO  
91-JP690 910523  
FDT EP 491953 A1 Based on WO 9200309; JP 03509213 X Based on WO 9200309;  
AU 643528 B Previous Publ. AU 9178919, Based on WO 9200309; US  
5354856 A Based on WO 9200309; JP 07014953 B2 Based on WO 9200309;  
US 5583215 A CIP of US 5354856; EP 491953 B1 Based on WO 9200309; DE  
69125803 E Based on EP 491953, Based on WO 9200309  
PRAI JP 90-164148 900625; JP 91-53211 910226  
AN 92-041501 [05] WPIDS  
AB WO 9200309 A UPAB: 931006  
New molasses-contg. maltitol crystals have the following properties:  
(a) the crystal structure is broken but relatively dense, as  
Searcher : Shears 308-4994

observed at magnification x1000 with a scanning electron microscope ; (b) the crystalline powder 20 to 50 mesh particle size range) has an apparent specific gravity of 0.650 to 0.750; (c) the capacity for absorption of oil of this crystalline powder is 7.0 to 17.0%. Pref. the solids content of the crystals is 80-98% (wt.) maltitol, 0.5-15% sorbitol and 1.5-10% of maltotriol and other sugar alcohols with DP 3 or more.

**USE - Prodn. of crystalline**

**maltitol** with a high apparent density and a low capacity for oil absorption.

1/2

ABEQ US 5354856 A UPAB: 941128

**Crystalline** mixt. solid contg. **maltitol** is **prepd.** by (a) continuously supplying an aq. soln. of **maltitol** to an extruder contg. elongated cooling and kneading zones, (b) growing a **maltitol** magma by cooling and kneading using seed **crystals** and (c) continuously extruding from a nozzle.

Concn. of aq. **maltitol** is pref. 80-98 wt.% such that **maltitol** content in the solid is 80-99 wt.%. Cooling/kneading temp. of (a) is pref. 50-90 deg.C. Seed crystals are pref. added in amt. 3-80 wt.% in (b) at 50-80 deg.C. Cooling/kneading in (b) is pref. 25-60 deg.C before extrusion.

**ADVANTAGE** - Solid is not bulky in vol. and requires no packaging material or container for exclusive use, and is heavy and tight in structure enabling prepn. of tablets from it.

Dwg.0/2

ABEQ US 5583215 A UPAB: 970122

A crystalline mixture solid containing **maltitol**, comprising a) having a crushed and relatively tight crystal structure which can be observed by a scanning electron microscope with magnifying power of x 1000, b) having an apparent specific gravity of the crystalline mixture solid containing **maltitol** having a particle size from 50 mesh to 20 mesh in the range of 0.650-0.750, c) having an oil absorptivity of the crystalline mixture solid containing **maltitol** having a particle size from 50 mesh to 20 mesh in the range of 7.0%-17%, and d) having a melting point of the crystalline mixture solid containing **maltitol** in the range of 134-145deg. C.

Dwg.0/2

ABEQ EP 491953 B UPAB: 970522

A solid **crystalline** mixture containing **maltitol** which is **preparaed** by supplying an aqueous solution of **maltitol** to an extruder provided with elongated cooling and kneading zones, cooling and kneading the aqueous solution of **maltitol** in the presence of seed **crystals** to form a **maltitol** magma, and extruding continuously said magma from a nozzle, comprising a) having a crushed and tight **crystal** structure which can be observed by a scanning electron microscope with magnifying power of x 1000, b) having a

Searcher : Shears 308-4994

bulk density of said solid **crystalline** mixture containing **maltitol** having a particle size from 50 mesh to 20 mesh in the range of 0.650-0.750, and c) having an oil absorptivity of said solid **crystalline** mixture containing **maltitol** having a particle size from 50 mesh to 20 mesh in the range of 7.0%-17%.

Dwg.0/2

L10 ANSWER 37 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 93-039776 [05] WPIDS

DNC C93-017946

TI Stable antiulcer agents - comprise cyclo hepteno pyridine derivs., amine(s) which are liq. at ordinary temps. or soluble in alcohol, basic inorganic salts and non-reducing sugars.

DC B02

PA (TOAE) TOA FOOD CHEM CO LTD

CYC 1

PI JP 04364127 A 921216 (9305)\* 7 pp

ADT JP 04364127 A JP 91-163468 910610

PRAI JP 91-163468 910610

AN 93-039776 [05] WPIDS

AB JP04364127 A UPAB: 931119

The pharmaceutical prepsns. comprise (1) cycloheptenopyridine derivs. of formula (I) or their salts, (2) amines which are liq. at ordinary temps. or soluble in alcohol, (3) basic inorganic salts, and (4) non-reducing sugars. In (I), R = H, lower alcohol; R1 = H, (un)subst'd. lower alkoxy; R2 = H, halo.

Pref. (2) are mono-, di-, or triethanolamine, ethylenediamine, and diisopropanolamine. Pref. (3) show pH 9 or more in 0.1 (W/V) aq. soln. or suspension. Pref. (3) are Mg oxide, Mg hydroxide, and Ca carbonate. Pref. (4) are maltitol, mannitol and lactitol. The ratio of (I) or their salts to the amines is 1 pt.wt. to 0.0001-1 pt.wt. The prepsns. contain 5-50 (W/W)% of (3) and 5-50 (W/W)% of (4).

USE/ADVANTAGE - The prepsns. contg. (I) and other components are useful as antiulceric agents whose stability has been remarkably improved even under humid conditions.

In an example, a mixt. of 10mg 9-(benzimidazol-2-yl) sulphinyl-4-methoxy-2,3- cycloheptenopyridine Na salt (I; R = R2 = H, R1 = OCH3), 0.2mg diethanolamine, 30mg MgO, 30.3mg **maltitol**, 45mg **cryst.** cellulose, 30mg partially alpha-starch, 1.5mg talc, and 3mg Mg stearate was made into 150mg tablets (dia. 7.5mm) by direct compression method. Diethanolamine was added as 2(W/V)% EtOH soln. These tablets were coated with a mixt. of 70mg methacrylic acid copolymer L, 5g tri-Et citrate, 5g talc, 800g EtOH, and 200g distd. water to form 165-mg tablets with enteric coating.

0/0

Dwg.0/0

09/160133

L10 ANSWER 38 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 92-201989 [25] WPIDS

TI Xylitol based directly compressible pulverulent compsn. - used as sweetening agent for confectionery prods., partic. chewing gum.

DC B05 B07 D13 E17

IN CROISIER, A; SERPELLONI, M; CROISER, A

PA (ROQF) ROQUETTE FRERES SA; (SERP-I) SERPELLONI M

CYC 21

PI EP 490768 A1 920617 (9225)\* FR 13 pp

R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE

AU 9189760 A 920618 (9232)

FR 2670398 A1 920619 (9233) 24 pp

NO 9104924 A 920615 (9233)

CA 2057530 A 920615 (9236)

FI 9105876 A 920615 (9237)

JP 04287650 A 921013 (9247) 10 pp

ZA 9109842 A 930224 (9315) 31 pp

AU 652200 B 940818 (9435)

US 5385749 A 950131 (9511) 9 pp

EP 490768 B1 950405 (9518) FR 16 pp

R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DE 69108691 E 950511 (9524)

ES 2070465 T3 950601 (9528)

NO 179506 B 960715 (9634)

US 5679398 A 971021 (9748) 9 pp

ADT EP 490768 A1 EP 91-403372 911212; AU 9189760 A AU 91-89760 911213; FR 2670398 A1 FR 90-15708 901214; NO 9104924 A NO 91-4924 911213; CA 2057530 A CA 91-2057530 911212; FI 9105876 A FI 91-5876 911213; JP 04287650 A JP 91-332263 911216; ZA 9109842 A ZA 91-9842 911213; AU 652200 B AU 91-89760 911213; US 5385749 A US 91-807128 911216; EP 490768 B1 EP 91-403372 911212; DE 69108691 E DE 91-608691 911212, EP 91-403372 911212; ES 2070465 T3 EP 91-403372 911212; NO 179506 B NO 91-4924 911213; US 5679398 A Cont of US 91-807128 911216, Cont of US 93-141090 931026, US 95-385786 950209

FDT AU 652200 B Previous Publ. AU 9189760; DE 69108691 E Based on EP 490768; ES 2070465 T3 Based on EP 490768; NO 179506 B Previous Publ. NO 9104924; US 5679398 A Cont of US 5385749

PRAI FR 90-15708 901214

AN 92-201989 [25] WPIDS

AB EP 490768 A UPAB: 931006

A directly compressible, xylitol based, pulverulent compsn. is characterised by a compressibility above 70 N, pref. above 80 N, determined in an A test. The compsn. is prepd. by extruding a raw material comprising at least 60% (pref. at least 80%) and additive(s) under conditions of extrusion parameters such that at the exit from the extruder die and before exit from the latter, the mixt. is partially melted. These conditions are feed rate, temp. prevailing inside the thermal treatment zone, dia. of the extrusion die and conveying speed of the raw material inside the thermal

Searcher : Shears 308-4994

treatment zone.

The compsn. pref. also contains an additive from saccharides, oligosaccharides, polysaccharides and their hydrogenated derivs., pref. being sugars, glycoses, syrups, maltodextrins and their hydrogenated derivs., esp. sorbitol, mannitol, maltitol and maltodextrins. A twin-screw extruder is pref. used and the temp. of the raw material inside the die and before its exit is 80-105 deg.C.

USE - The compsn. is used as a sweetening agent in confectionery, partic. chewing gum (claimed)

0/2

ABEQ FR 2670398 A UPAB: 931006

A directly compressible, xylitol based, pulverulent compsn. has a compressibility above 70N, pref. above 80N, determined in an A test. The compsn. is prepd. by extruding a raw material comprising at least 60% (pref. at least 80%) and additives under conditions of extrusion parameters such that at the exit from the extruder die and before exit from the latter, the mixt. is partially melted. These conditions are feed rate, temp. prevailing inside the thermal treatment zone, dia. of the extrusion die and conveying speed of the raw material inside the thermal treatment zone.

The compsn. pref. also contains an additive from saccharides, oligosaccharides, polysaccharides and their hydrogenated derivs. prefd. being sugars, glycoses, syrups, maltodextrins and their hydrogenated derivs. esp. sorbitol, mannitol, maltitol and maltodextrins. A twin-screw extruder is pref. used and the temp. of the raw material inside the die and before its exit is 80-105 deg.C.

USE - The compsn. is used as a sweetening agent in confectionary partic. chewing gum (claimed)

0/2

ABEQ ZA 9109842 A UPAB: 931006

A directly compressible, xylitol based, pulverulent compsn. is characterised by a compressibility above 70 N, pref. above 80 N, determined in an A test.

The compsn. is prepd. by extruding a raw material comprising at least 60% (pref. at least 80%) and additive(s) under conditions of extrusion parameters such that at the exit from the extruder die and before exit from the latter, the mixt. is partially melted. These conditions are feed rate, temp. prevailing inside the thermal treatment zone, dia. of the extrusion die and conveying speed of the raw material inside the thermal treatment zone.

The compsn. pref. also contains an additive from saccharides, oligosaccharides, polysaccharides and their hydrogenated derivs., pref. being sugars, glycoses, syrups, maltodextrins and their hydrogenated derivs., esp. sorbitol, mannitol, maltitol and maltodextrins. A twin-screw extruder is pref. used and the temp. of the raw material inside the die and before its exit is 80-105 deg. C.

USE - The compsn. is used as a sweetening agent in confectionery, partic. chewing gum (claimed)

Searcher : Shears 308-4994



ABEQ US 5385749 A UPAB: 950322

A directly compressible xylitol, (a **crystalline** alcohol sugar), compsn. comprises xylitol and at least one additive, viz. mannitol, **maltitol** powder, maltodextrins, glucose syrups, both opt. hydrogenated, having xylitol content 60+ (80+) %. The compsn. is compressed in a extrusion apparatus (Fig 1) to density 1.35 g/ml and compressibility 70+N (80+N) by test A. The extrusion apparatus has heat treatment zone partially melting the mixt. before it passes through an extrusion die to **form** tablets.

USE/ADVANTAGE - Pleasant tasting tablets for confectionary (chewing gum) and pharmaceutical industries. Sweetness nearly equal to that of sucrose. Suitable for diabetics and has anticarie action.  
Dwg.1/2

ABEQ EP 490768 B UPAB: 950518

Directly compressible pulverulent composition based in xylitol, characterized in that it comprises at least one additive selected from saccharides, oligosaccharides and polysaccharides and their corresponding hydrogenated compounds, in that it has a compressibility, determined in a test A, above 70 N, preferably above 80 N, but excluding compositions prepared by granulating xylitol with a physiologically acceptable, non-cariogenic binder, said binder being present in the range of 0.1 % to 5 % by weight and being selected from the group constituted by polymerized reducing sugars, alkali carboxymethylcellulose and hydrogenated starch hydrolysates.

Dwg.0/2

ABEQ US 5679398 A UPAB: 971209

Partially melt co-crystallized xylitol/sorbitol having a compressibility determined by Test A, above 70N.

Dwg.1/2

L10 ANSWER 39 OF 68 CBNB COPYRIGHT 1999 RSC

AN 9(2):1343 CBNB

TI Hayashibara grants anhydrous crystalline maltitol licence to French firm, Rougette Freres.

SO Japan Chemical Week (10 Dec 1992) 33 (1704), 4, (200-899 words)  
CODEN: JCHWAC ISSN: 0047-1755

DT Journal

LA English

PY 1992

AB Rougette Freres Group, France, has been granted a **manufacturing** licence for Hayashibara Biochemical Laboratories Inc's anhydrous **crystalline maltitol**. It will be used for sugar free foods, and Rougette will **produce** and market it in both Europe and the US. There is a growing demand for sugar free foods although anhydrous **crystalline maltitol** is not yet widely used in them.

09/160133

L10 ANSWER 40 OF 68 CIN COPYRIGHT 1999 ACS  
AN 22(1):502U CIN  
TI Hayashibara grants anhydrous crystalline maltitol licence to French firm  
SO Jpn. Chem. Week, 10 Dec 1992 (921210), 33(1704), p. 4. ISSN: 0047-1755; CODEN: JCHWAC.  
LA English  
AB Hayashibara Biochemical Laboratories, Inc. has granted a license for the **manufacturing** technology for anhydrous **crystalline maltitol** to a French sugar-alcohol **manufacturer**, Roguette Freres Group. The French group will manufacture the product in Europe and the United States based on Hayashibara's patent and sell it mainly for sugar-free foods.

L10 ANSWER 41 OF 68 PROMT COPYRIGHT 1999 IAC  
AN 93:417262 PROMT  
TI Hayashibara Grants Anhydrous Crystalline Maltitol License To French Firm  
Hayashibara Biochem Labs: Grants anhydrous crystalline maltitol license to Roguette Freres Group  
SO Japan Chemical Week, (10 Dec 1992) pp. 4. ISSN: 0047-1755.  
LA English  
AB Hayashibara Biochemical Laboratories (Japan) has granted a license to Roguette Freres Group (France) to **manufacture** anhydrous **crystalline maltitol** according to the **former's** technology. Roguette Freres will **produce** the sweetener in the US and Europe for use in sugar-free foods. The **maltitol** is not absorbed in the small intestine and has no effect on insulin secretion. It is not fermented by bacterial to cause cavities.

L10 ANSWER 42 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
AN 91-127441 [18] WPIDS  
DNC C91-054756  
TI Prepn. of low calorie candy having soft centre - using sugar alcohol derived from hexose, and candy prepd. from reduced malt sugar syrup.  
DC D13  
PA (SANS-N) SANSEI SHOKUJIN KK  
CYC 1  
PI JP 03058750 A 910313 (9118)\*  
JP 05051263 B 930802 (9333) 5 pp  
ADT JP 03058750 A JP 89-195363 890727; JP 05051263 B JP 89-195363 890727  
FDT JP 05051263 B Based on JP 03058750  
PRAI JP 89-195363 890727  
AN 91-127441 [18] WPIDS  
AB JP03058750 A UPAB: 930928  
Soft centre treated with sugar alcohol originated from hexose is  
Searcher : Shears 308-4994

09/160133

used. The outer part of candy is prepd. using reduced malt sugar syrup, crystallised maltitol and/or other saccharides.

USE - Sugar less or low calorie candy having soft centre can be industrially produced. It is preserved for long term and excellent in durability.

0/1

ABEQ JP93051263 B UPAB: 931119

Soft centre treated with sugar alcohol originated from hexose is used. The outer part of candy is prepd. using reduced malt sugar syrup, crystallised maltitol and/or other saccharides.

USE - Sugar less or low calorie candy having soft centre can be industrially produced. It is preserved for long term and excellent in durability. (J03058750-A)

L10 ANSWER 43 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 91-195005 [27] WPIDS

DNC C91-084372

TI Crystalline sugar alcohol compsn. - derived from mono- or polysaccharide, contg. uniformly dispersed particulate pharmaceutical cpd..

DC B07

IN DUROSS, J W

PA (ICIL) ICI AMERICAS INC; (DURO-I) DUROSS J W; (SPIP-N) SPI POLYOLS INC

CYC 23

PI EP 435450 A 910703 (9127)\*

R: AT BE CH DE ES FR GB GR IT LI LU NL SE

AU 9066769 A 910530 (9129)

NO 9005075 A 910523 (9130)

FI 9005781 A 910523 (9133)

JP 03209336 A 910912 (9143)

CA 2030670 A 910523 (9144)

PT 95964 A 911015 (9146)

ZA 9009313 A 911030 (9148)

US 5075291 A 911224 (9203)

AU 638074 B 930617 (9331)

TW 217386 A 931211 (9407)

EP 435450 B1 941012 (9439) EN 10 pp

R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DE 69013314 E 941117 (9445)

ES 2065499 T3 950216 (9513)

FI 95657 B 951130 (9601)

ADT EP 435450 A EP 90-312752 901122; JP 03209336 A JP 90-320587 901122; ZA 9009313 A ZA 90-9313 901120; US 5075291 A US 89-441131 891122; AU 638074 B AU 90-66769 901120; TW 217386 A TW 90-110489 901213; EP 435450 B1 EP 90-312752 901122; DE 69013314 E DE 90-613314 901122; EP 90-312752 901122; ES 2065499 T3 EP 90-312752 901122; FI 95657 B FI 90-5781 901122

Searcher : Shears 308-4994

FDT AU 638074 B Previous Publ. AU 9066769; DE 69013314 E Based on EP 435450; ES 2065499 T3 Based on EP 435450; FI 95657 B Previous Publ. FI 9005781

PRAI US 89-441131 891122

AN 91-195005 [27] WPIDS

AB EP 435450 A UPAB: 930928

Pharmaceutical compsn. comprises crystalline sugar alcohol derived from at least one mono- or polysaccharide and has uniformly dispersed within the crystal matrix of the sugar alcohol particles of at least one pharmaceutically active cpd.

The sugar alcohol is sorbitol, mannitol, cocrystd. sorbitol with mannitol, xylitol, maltitol, lactitol, cellobiitol and hydrogenated starch hydrolysates, esp. sorbitol or co-crystd. sorbitol and mannitol contg. 5-15 wt.% of mannitol. The active cpd. is one or more of an oxide or a salt of an alkali or an alkaline earth metal, zinc, aspartame, saccharin, phenylpropanolamine.HCl, ibuprofen, cimetidine, atenolol, acetaminophen or aspirin. The compsn. is pref. in the form of a tablet or a chewing gum.

USE - The active cpd. can be an organic or inorganic orally ingestible cpd. taken for medicinal, dietary and/or nutritional purposes.

0/0

ABEQ US 5075291 A UPAB: 930928

Pharmaceutical compsns. comprise a crystalline sugar alcohol (I) derived from at least 1 mono- or polysaccharide and which has dispersed within its matrix particles of pharmaceutically active cpd(s). (II).

(I) is pref. mannitol, xylitol, maltitol, lactitol, cellobiitol, a hydrogenated starch hydrolysate or esp. sorbitol, opt. co-crystallised with mannitol. The co-crystallised prod. pref. contains 5-15 wt.% mannitol.

(II) is pref. an alkali(ne earth) oxide or salt; mineral supplement of Fe, Mn, Cu and Zn; aspartamine; saccharine; phenylpropanolamine hydrochloride; ibuprofen; cimetidine; atenolol; acetaminophen or aspirin.

USE/ADVANTAGE - Economical prepn. of uniformly dispersed particulate active material in pharmaceutical compsn.

ABEQ EP 435450 B UPAB: 941122

A pharmaceutical composition comprising crystalline sugar derived from at least one mono- or polysaccharide and having uniformly dispersed within the crystal matrix of the sugar alcohol particles of at least one pharmaceutical active compound.

Dwg.0/0

L10 ANSWER 44 OF 68 BIOTECHDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 90-07073 BIOTECHDS

TI Maltose and maltitol preparation method;

Searcher : Shears 308-4994

starch saccharification using beta-amylase, pullulanase,  
isoamylase and recombinant alpha-amylase; Bacillus  
stearothermophilus gene cloning in Bacillus subtilis

PA Towa-Kasei  
PI JP 02042997 13 Feb 1990  
AI JP 88-171762 12 Jul 1988  
PRAI JP 88-101355 26 Apr 1988  
DT Patent  
LA Japanese  
OS WPI: 90-088369 [12]  
AN 90-07073 BIOTECHDS  
AB Maltose and maltitol are prepared as follows.  
Aq. 10-30% ground starch solution is liquified using an enzyme, and  
the enzyme is inactivated at a DE below 10. The liquified  
product is saccharified using beta-amylase (EC-3.2.1.2),  
pullulanase (EC-3.2.1.41) and/or isoamylase (EC-3.2.1.68). The  
liquifying enzyme is added at 1-20 U/g substrate solids 1-10 hr  
after the start of the second process, and saccharification is  
continued further. A recombinant maltogenic alpha-amylase  
(EC-3.2.1.1), prepared by cloning of a Bacillus  
stearothermophilus gene in Bacillus subtilis using a plasmid  
vector, is added at 1-20 U/g substrate solids. Saccharification is  
continued until the maltose content in the product is  
75-88%, and the oligosaccharide (above trisaccharide) content in  
the product is below 8%. For maltitol  
preparation, the saccharified product is reduced.  
Using this method, maltose and maltitol of low  
oligosaccharide content or corresponding sugar alcohol content are  
prepared simply, using common enzymes in combination, and  
may be easily crystallized and powdered directly. (6pp)

L10 ANSWER 45 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
AN 90-350065 [47] WPIDS  
DNC C90-151924  
TI Sugar-free crusted liq. fillings for chocolates - made from mixt. of  
poly ol, water or water-alcohol mixt. and gelling and  
crystallisation retarding agent.  
DC D13  
IN CAPPELMANN, K; KRUEGER, C; KFUGER, C  
PA (CULT-N) CULTOR OY; (XYRO-N) XYROFIN OY; (KRUG-I) KRUGER C; (SUXY-N)  
SUOMEN XYROFIN OY; (XYRO-N) XYROFIN OY  
CYC 20  
PI EP 398279 A 901122 (9047)\*  
R: AT BE CH DE ES FR GB GR IT LI LU NL SE  
DE 3939997 A 901122 (9048)  
NO 9002189 A 901119 (9104)  
CA 2017161 A 901118 (9107)  
FI 9002462 A 901119 (9112)  
DE 3939997 C 910523 (9121)

Searcher : Shears 308-4994

JP 03117458 A 910520 (9126)

US 5063080 A 911105 (9147)

DD 296834 A5 911219 (9221)

EP 398279 B1 930915 (9337) DE 8 pp

R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DE 59002704 G 931021 (9343)

FI 95194 B 950929 (9544)

ADT EP 398279 A EP 90-109219 900516; DE 3939997 A DE 89-3939997 891202;  
JP 03117458 A JP 90-127038 900518; US 5063080 A US 90-524879 900518;  
DD 296834 A5 DD 90-340773 900517; EP 398279 B1 EP 90-109219 900516;  
DE 59002704 G DE 90-502704 900516, EP 90-109219 900516; FI 95194 B  
FI 90-2462 900518

FDT DE 59002704 G Based on EP 398279; FI 95194 B Previous Publ. FI  
9002462

PRAI DE 89-3916189 890518; DE 89-3939997 891202

AN 90-350065 [47] WPIDS

AB EP 398279 A UPAB: 940103

Sugar-free crusted liq.-filled chocolates are made from polyols, water or a water-alcohol mixt. and a gelling- and crystallisation-retarding agent.

USE/ADVANTAGE - The sugar-free chocolate fillings are a replacement for the fillings in liq.-filled chocolates conventionally made by boiling a mixt. of sugar, water or a water-alcohol mixt. and opt. food acid and flavourings to give a soln. with a prescribed solids content, casting the hot soln. into shaped cavities in a powder mould, allowing the soln. to cool in the mould so that a crust forms on the exterior wall of the cast shapes, and finally demoulding the crusted liq. shapes and coating them in chocolate. @ (8pp Dwg.No.0/0)  
0/0

ABEQ DE 3939997 C UPAB: 930928

Mixt. for producing sugar-free pralines comprises aroma and/or edible acids, 42-71wt.% polyol, 28-48wt.% water or aq. alcohol, and 1-10% of gelling agent or crystallisation-delaying thickener.

Pref. the ratio polyol:water is 2:1, the polyol is xylitol, the aq. alcohol contains 40-70 vol.% alcohol and the gelling agent or thickener contains gum arabic, maltitol syrup or agar-agar.

USE/ADVANTAGE - The sweets are suitable for diabetics and are less damaging to teeth. After cooking, a crust forms on the outside which is mechanically stable and does not become powdery.

ABEQ US 5063080 A UPAB: 930928

Sugar-free crust for candies is **prepd.** using a compsn. contg. (a) 42-71 wt.% polyol; (b) 28-48 wt.% water opt. contg. alcohol; and (c) 1-10 wt.% thickening agent to retard gelatinisation or **crystallisation**. Wt. ratio polyol:water is 2.5-1.5:1. Polyol comprises xylitol, sorbitol, mannitol, **maltitol**, lactitol, and/or isomalt. Cpd. (c) comprises gum arabic, syrup of **maltitol**, or agar-agar. Opt. compsn. also includes food acids or flavouring agents.

Searcher : Shears 308-4994

ADVANTAGE - Is mechanically stable after boiling step in its prepn.

ABEQ EP 398279 B UPAB: 931123

A sugar-free crust chocolate, consisting of polyols, water or a water-alcohol mixture, thickening agents retarding gelatinization and crystallization as well as flavour substances and/or stimulant acids, obtainable by mixing 42 to 71% by weight of polyol, 28 to 48% by weight of water or water-alcohol mixture, 10 to 1% by weight of gelatinizing and thickening agents, followed by boiling this mixture and casting it in moulding powder.

Dwg.0/0

L10 ANSWER 46 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 89-229398 [32] WPIDS

DNC C89-101797

TI New polypeptide with isoamylase activity for converting starch to maltosearcarbonateomy - is derived from Pseudomonas amyloclavata or transformed host microorganisms.

DC B04 B07 D13 D16

IN AMEMURA, A; FUTAI, M

PA (HAYB) HAYASHIBARA SEIBUTSU KAGAKU

CYC 7

PI EP 327391 A 890809 (8932)\* EN 29 pp

R: DE FR GB IT

JP 01199577 A 890810 (8938)

US 5118622 A 920602 (9225) 14 pp

CA 1336509 C 950801 (9538)

EP 327391 B1 970827 (9739) EN 38 pp

R: DE FR GB IT

DE 68928271 E 971002 (9745)

JP 2838798 B2 981216 (9904) 18 pp

ADT EP 327391 A EP 89-301088 890203; JP 01199577 A JP 88-24762 880204;  
US 5118622 A US 89-305974 890203; CA 1336509 C CA 89-589516 890130;  
EP 327391 B1 EP 89-301088 890203; DE 68928271 E DE 89-628271 890203,  
EP 89-301088 890203; JP 2838798 B2 JP 88-24762 880204

FDT DE 68928271 E Based on EP 327391; JP 2838798 B2 Previous Publ. JP 01199577

PRAI JP 88-24762 880204

AN 89-229398 [32] WPIDS

AB EP 327391 A UPAB: 930923

Polypeptide (I) with isoamylase activity contains one or both of the partial sequences Met-Asp-Val-Val-Tyr-Asn-His-Thr (a) and Asp-Gly-Phe-Arg-Phe-Asp-Leu (b).

Both sequences are present with (a) nearer the N-terminus than (b), and (I) has the N-terminal partial sequence Ala-Ile-Asn-Ser-Met-Ser-Leu-Gly-Ala-Ser-Tyr-Asp-Ala-Gln- Gln-Ala-Asn-Ile-Thr-Phe. (I) has mol. wt. 75-85 kD (SDS-PAGE) and isoelectric point 4.6-4.8. The specification includes the complete sequence (745 amino acids) of a pref. (I).

Searcher : Shears 308-4994

USE/ADVANTAGE - (I) is used, together with beta-amylase, to convert amylaceous materials to highmaltose products from which high purity maltose can be recovered by crystallisation etc. Maltose is useful as a sweetener in foods; as a component in pharmaceutical injection solns; in nutrient supplements, and an intermediate (by hydrogenation) for the non-assimilable sweetener maltitol. (I) can now be produced in large quantities by recombinant DNA methods.

0/1

ABEQ US 5118622 A UPAB: 930923

Prodn. of enzymolysis prods. having a high maltose content comprises hydrolysis of amylaceous substances with a beta-amylase and a polypeptide obtd. from Pseudomonas amyloclavata, at temps. not less than 50 C. The polypeptide has Mr 75,000-85,000, isoelectric pt. 4.6-4.8, and is stable at temps. up to 50 C in 0.1 mol dm<sup>-3</sup> acetate buffer (pH 3.5); its amino acid sequence is defined; and it is an isoamylase, hydrolysing alpha-1,6-glucosidic links in starch or glycogen.

USE - The prods. facilitate the prodn. of maltose from starches, etc.

ABEQ EP 327391 B UPAB: 970926

A polypeptide possessing isoamylase activity, which has a molecular weight of 80,000 +/- 5,000 daltons on SDS-polyacrylamide gel electrophoresis and an isoelectric point of 4.7 +/- 0.1 on polyacrylamide gel isoelectric electrophoresis, and contains the following partial amino acid sequences (1) and (2), (1) Met - Asp - Val - Val - Tyr - Asn - His - Thr, and (2) Asp - Gly - Phe - Arg - Phe - Asp - Leu; the polypeptide being obtainable from a transformant into which is introduced a DNA which is from Pseudomonas amyloclavata SB-15 and which encodes the polypeptide. Dwg.0/0

L10 ANSWER 47 OF 68 MEDLINE

DUPLICATE 3

AN 89303604 MEDLINE

DN 89303604

TI Carbohydrate-controlled precipitation of apatite with coprecipitation of organic molecules in human saliva: stabilizing role of polyols.

AU Makinen K K; Soderling E; Peacor D R; Makinen P L; Park L M

CS Department of Biologic and Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor..

SO CALCIFIED TISSUE INTERNATIONAL, (1989 Apr) 44 (4) 258-68.  
Journal code: CGH. ISSN: 0171-967X.

CY GERMANY, WEST: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198910

AB Addition of common dietary carbohydrates to Millipore-treated human

Searcher : Shears 308-4994



whole saliva either enhances or inhibits the formation of salivary precipitates, some carbohydrates showing no effect. The purpose of this study was to investigate the precipitation conditions more thoroughly and to elucidate the chemical nature of the precipitates formed. D-Xylose either enhanced precipitation (in long-term incubations) or had no appreciable effect (in 10 minute incubations). Other aldo- and keto-sugars and disaccharides (maltose, sucrose, lactose) generally enhanced precipitation, whereas all polyols (xylitol, D-sorbitol, mannitol, and maltitol) retarded the formation of turbidity in saliva. Xylitol inhibited formation of precipitates also in the presence of D-xylose, dextrans, and starch. Fast protein liquid chromatography (FPLC) of EDTA-soluble pellets obtained by centrifugation of the precipitates produced two major protein fractions (I and II) with a molecular weight of 112,000 and 46,000, respectively. The carbohydrates exerted a selective effect on the relative size of I and II in that polyol incubations resulted in a I to II ratio of 1:3, whereas control incubations (without added sugars) and incubations with other carbohydrates gave ratios of 1:6 to 1:10. Both peaks contained large amounts of acidic amino acids, proline, and glycine. The saliva precipitates contained a substantial portion of a crystalline phase that had the crystal structure of apatite, the individual crystallites being extremely small (less than 1 micron) with a Ca:P ratio of 1.46. The carbohydrates had a similar effect on the overall inorganic composition of the precipitates, but they had a clearly selective effect on the rate of formation of precipitates and on the relative amount of coprecipitating salivary proteins. This selectivity indicates that these carbohydrates, when consumed habitually, may exert different effects on the precipitation of Ca-salts at mineral-deficient enamel and dentine sites.

L10 ANSWER 48 OF 68 MEDLINE DUPLICATE 4  
 AN 90091310 MEDLINE  
 DN 90091310  
 TI The effect of hydrogenated starch hydrolysates on plaque pH in vivo.  
 AU Abelson D C  
 SO CLINICAL PREVENTIVE DENTISTRY, (1989 Mar-Apr) 11 (2) 20-3.  
 Journal code: DH2. ISSN: 0163-9633.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Dental Journals; Dental  
 EM 199004  
 AB The purpose of this research was to study the effect of five test hydrogenated starch hydrolysates on plaque pH in vivo. The results were compared with those produced by positive and negative controls. The results indicated that three test materials, Lycasin  
 Searcher : Shears 308-4994

09/160133

(Roquette Corporation, Gurnee, IL), **Crystalline maltitol**, and Maltisorb (Roquette Corporation, Gurnee, IL), were statistically equivalent to the negative control, sorbitol, and therefore can be considered noncariogenic.

L10 ANSWER 49 OF 68 CBNB COPYRIGHT 1999 RSC  
AN 5(46):33972 CBNB  
TI Cerestar buys Melida sweeteners.  
Cerestar.  
SO Chimie Actualites (6 Nov 1989) 307, 2, (10-99 words)  
CODEN: CHIABC ISSN: 0009-4323  
DT Journal  
LA French  
PY 1989  
AB Cerestar (Ferruzzi group), one of the leading European  
**producers** of glucose syrup, has purchased Italian company  
Melida from EniChem Sintesi (Enimont). Melida makes sweeteners  
(xylose, xylitol and liquid/crystal maltitol)  
in Darfo, near Brescia.

L10 ANSWER 50 OF 68 BIOSIS COPYRIGHT 1999 BIOSIS  
AN 1989:80736 BIOSIS  
DN BR36:36827  
TI ANHYDROUS **CRYSTALS OF MALTITOL** AND THE WHOLE  
**CRYSTALLINE** HYDROGENATED STARCH HYDROLYSATE MIXTURE SOLID  
CONTAINING THE **CRYSTALS** AND PROCESS FOR THE  
**PRODUCTION** AND USES THEREOF.  
AU HIRAO M; HIJIYA H; MIYAKA T  
CS OKAYAMA, JAPAN.  
ASSIGNEE: KABUSHIKI KAISHA HAYASHIBARA SEIBUTSU KAGAKU KENKYUJO  
PI US 4789559 06 Dec 1988  
SO Off. Gaz. U. S. Pat. Trademark Off., Pat., (1988) 1097 (1), 294-295.  
CODEN: OGUPE7. ISSN: 0098-1133.  
DT Patent  
FS BR; OLD  
LA English

L10 ANSWER 51 OF 68 BIOSIS COPYRIGHT 1999 BIOSIS  
AN 1988:118862 BIOSIS  
DN BR34:54724  
TI ANHYDROUS **CRYSTALS OF MALTITOL** AND WHOLE  
**CRYSTALLINE** HYDROGENATED STARCH HYDROLYSATE MIXTURE SOLID  
CONTAINING THE **CRYSTALS** AND PROCESS FOR THE  
**PRODUCTION** AND USES THEREOF.  
AU HIRAO M; HIJIYA H; MIYAKA T  
CS OKAYAMA, JAPAN.  
ASSIGNEE: KABUSHIKI KAISHA HAYASHIBARA SEIBUTSU KAGAKU KENKYUJO  
PI US 4717765 05 Jan 1988  
SO Off. Gaz. U. S. Pat. Trademark Off., Pat., (1988) 1086 (1), 397.  
Searcher : Shears 308-4994

CODEN: OGUPE7. ISSN: 0098-1133.

DT Patent  
 FS BR; OLD  
 LA English

L10 ANSWER 52 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 87-099107 [14] WPIDS

DNC C87-041407

TI Grape sugar granules prodn. - by adding sugar soln. to anhydrous  
 crystalline grape sugar and granulating.

DC D17

PA (AITO-N) AITO KK; (TAKE) TAKEDA CHEM IND LTD

CYC 1

PI JP 62048691 A 870303 (8714)\* 5 pp

ADT JP 62048691 A JP 86-27606 860210

PRAI JP 85-25401 850212; JP 86-27606 860210

AN 87-099107 [14] WPIDS

AB JP62048691 A UPAB: 930922

Sugar of concn at least 30 wt.%, is added to anhydrous  
**crystalline** grape sugar so that moisture in the grape sugar  
 is 7 - 16 wt.%. The **crystalline** grape sugar is granulated.  
 USE/ADVANTAGE - The grape sugar granules are used as a table  
 sweetener for coffee, tea, grape fruit, or yogurt. The grape sugar  
 granules are also used as raw material grape sugar for food  
 processing such as sweetening **formulation**, seasoning  
**formulation**. The method requires no drying processing  
 resulting in simple **prodn.** processes and reducing  
 consumption of heat energy and **production** costs. The grape  
 sugar granule **prods** obtd by the method have good fluidity,  
 causing no dust or consolidation at the time of dissolution. The  
**prods** are easily dissolved as compared with **crystal**  
 having the same grain size. Pref. the sugar is monosaccharide such  
 as grape sugar, fructose, xylose, arabinose; oligosaccharide such as  
 cane sugar, maltose; oligosaccharide or polysaccharide such as  
 dextrin, starch syrup; or sugar alcohol such as sorbitol,  
**maltitol**, or reducing starch syrup. Grape sugar, is pref  
 isomerised syrup or sorbitol.  
 0/0

L10 ANSWER 53 OF 68 BIOTECHDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 86-11489 BIOTECHDS

TI **Preparation of crystallized maltitol;**  
 by enzymic saccharification of starch milk and catalytic  
 hydrogenation followed by chromatography

PA Roquette-Freres

PI FR 2575179 27 Jun 1986

AI FR 84-19600 20 Dec 1984

PRAI FR 84-19600 20 Dec 1984

DT Patent

Searcher : Shears 308-4994

LA English

OS WPI: 86-206230 [32]

AN 86-11489 BIOTECHDS

AB The preparation of crystallized

maltitol comprises the enzymic saccharification of starch milk containing 25-45% solids, the conditions (type and amount of enzyme, temp., reaction length etc.) being such that the maltose content of the obtained syrup is 50-80 (60-80) wt.% with respect to solids. This stage is followed by catalytic hydrogenation and the maltitol syrup obtained is subjected to fractionation by chromatography so that a fraction is obtained which is rich in maltitol which can then be concentrated to a solid suitable for crystallization. The maltitol crystals are then separated. The mother liquor of crystallization is recycled to the head of the chromatographic fractionation step. The recycling permits an almost quantitative extraction of the maltitol formed during hydrogenation of the maltose syrup. The volumes to be treated are much smaller in this method than with previously used methods. The use of enzymes such as isoamylase or pullulanase can be avoided and the high osmotic pressure caused by the high syrup concentrations protects the syrup from any microbial contamination. (22pp)

L10 ANSWER 54 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 87-003714 [01] WPIDS

DNC C87-001592

TI Mfg. sugar-coated solid tablets - by coating core with aq. soln. contg. maltitol and coating reinforcer and crystallising.

DC A96 A97 B07 D13

PA (HAYB) HAYASHIBARA BIOCHEMICAL LAB \*

CYC 1

PI JP 61263915 A 861121 (8701)\* 4 pp

JP 07055898 B2 950614 (9528) 4 pp

ADT JP 61263915 A JP 85-106000 850520; JP 07055898 B2 JP 85-106000 850520

FDT JP 07055898 B2 Based on JP 61263915

PRAI JP 85-106000 850520

AN 87-003714 [01] WPIDS

AB JP61263915 A UPAB: 930922

An aq. soln. contg. maltitol and a sugar coating reinforcer is coated over a core tablet and the maltitol is crystallised out.

Pref. the maltitol has a purity of 90 w/w% or more, esp. 93 w/w% or more, with the concn. in the soln. being 40-95 w/w%, pref. 60-90 w/w%. The sugar coating reinforcer is e.g. gelatin, gum arabic, hydroxymethylcellulose, or pullulan, esp. pullulan additive amt. being 0.1-10 w/w%. The tablets may include fine powder, granules, pills, etc. The aq. soln. may contain talc, kaolin, calcium carbonate, starch, colouring substance, perfume or

Searcher : Shears 308-4994

flavouring.

USE/ADVANTAGE - The tablets are used for pharmaceuticals or foods, showing no cracking or splitting.

0/0

L10 ANSWER 55 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 86-206230 [32] WPIDS

DNC C86-088617

TI **Prepn. of crystallised maltitol** - by enzymic saccharification of milk or starch catalytic hydrogenation chromatographic fractionation of the maltose syrup etc..

DC D17 E17

IN DEVOS, F; GOUY, P A

PA (ROQF) ROQUETTE FRERES SA

CYC 15

PI FR 2575179 A 860627 (8632)\* 22 pp

EP 189704 A 860806 (8632) FR

R: BE CH DE FR GB IT LI NL SE

AU 8551546 A 860626 (8633)

DK 8505938 A 860621 (8638)

JP 61180797 A 860813 (8639)

FI 8505063 A 860621 (8643)

US 4846139 A 890711 (8935)

EP 189704 B 900131 (9005) FR

R: BE CH DE FR GB IT LI NL SE

DE 3575728 G 900308 (9011)

JP 02011599 B 900314 (9014)

CA 1266645 A 900313 (9018)

ADT FR 2575179 A FR 84-19600 841220; EP 189704 A EP 85-402587 851220; JP 61180797 A JP 85-285911 851220; US 4846139 A US 88-143275 880106

PRAI FR 84-19600 841220

AN 86-206230 [32] WPIDS

AB FR 2575179 A UPAB: 930922

**Prepn. of crystallised maltitol**

comprises:- (1) enzymic saccharification of a starch milk contg.

25-45% solids, the conditions (type and amt. of enzymes, temp. time

of reaction, etc) being such that the maltose content of the obtd.

syrup is 50-80 (60-80) wt.% w.r.t solids; (2) Catalytic

hydrogenation in known fashion; (3) Chromatographic fractionation of

the maltitol syrup, the parameters being such that a

fraction (A) is obtd. rich on maltitol having the

following compsn in wt.% w.r.t solids:- 87-97.5 (87-96) wt.% of

maltitol; less than 1% (pref. less than 0.6%) of polyols of

D.P at least 4, balance being sorbitol and maltotriol; (4) Concn.

of the fraction (A) to a solids content suitable for permitting

formation of maltitol crystals; (5)

**Crystallisation and sepn. of maltitol**

**crystals** and (6) Recycling of the mother liquor of the

**crystallisation** to the head of the chromatographic

Searcher : Shears 308-4994

fractionation step, this recycling permitting an almost quantitative extraction of the **maltitol** formed during hydrogenation of the maltose syrup.

**ADVANTAGE** - The volumes to be treated are reduced. The energy required for water evaporation is markedly reduced. The liquefaction of the starch can be done at a dextrose equivalent greater than 2, compatible with an absence of retrogradation of the starch. The use of enzymes such as isoamylase or pullulanase can be avoided. The high osmotic pressures caused by the high syrup concns. used protect the latter from any microbial contamination.

0/4

ABEQ EP 189704 B UPAB: 930922

Process for **preparing crystalline**

**maltitol**, characterized by the fact that it comprises successively: a catalytic hydrogenation step performed in a manner known in itself, of a maltose syrup containing at least 50%, preferably from 60 to 80% by weight on dry matter, of maltose obtained by enzymatic saccharification, with a dry matter content comprised between 25 and 45% of a starch milk liquefied by the acid or enzymatic route. a chromatographic fractionation step performed in a manner known in itself, of the **maltitol** syrup obtained at the preceding step, the parameters of this chromatographic fractionation step among which namely the elution rate, the rate of feeding with hydrogenated syrup, the rate of extraction of the fraction rich in **maltitol**, the composition of the zones of desorption, adsorption and enrichment, being selected in order to obtain a fraction (A) rich in **maltitol** having the following composition, the percentages being expressed by weight to dry matter: at least 87%, preferably from 87 to 97.5% and, more preferably, from 87 to 95.5% of **maltitol**, a proportion of polyols of degree of polymerization or DP more than 4 less than 1%, preferably less than 0.7% and, still more preferably, less than 0.6%, the complement to 100% being constituted by sorbitol and maltotritol, a step of concentration of the fraction (A) rich in **maltitol** to a dry matter content suitable for permitting the **formation of maltitol crystals**, generally comprised between 75 and 92% of dry matter a step of **crystallization** and separation of the **maltitol crystals** and a step recycling the **crystallization** mother liquors to the head of the chromatographic fractionation step, this recycling of the **crystallization** mother-liquors enabling an almost quantitative extraction of the **maltitol** formed during the hydrogenation step of the maltose syrup.

ABEQ US 4846139 A UPAB: 930922

Maltitol is prepd. by (a) liquefying starch milk of dry matter content 25-45wt.% to dextrose equiv. 2-25; (b) subjecting this to an enzyme to saccharify starch to form a maltose syrup of dry matter content 25-45wt.% contg. 50-80wt.% maltose; (c) catalytically

Searcher : Shears 308-4994

hydrogenating with ruthenium or Raney nickel catalyst to form syrup contg. 50-80wt.% maltitol, sorbitol, maltotriitol, and polyols of deg. of polymerisation 4 or more; and (d) chromatographically fractionating syrup to form maltitol-rich fractions comprising (i) 87wt.% or more maltitol, (ii) less than 1wt.% of the polyols, and (iii) sorbitol and maltotriitol to 100wt.%.

Process comprises (e) concentrating fractions to 75-92wt.% (dry matter); (f) **crystallising maltitol** from the conc. **forming crystal** sepd. from mother liquors; (g) recycling liquor to (d).

ADVANTAGE - Good yield is obt'd. with richness more than 96%.

L10 ANSWER 56 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 86-306895 [47] WPIDS  
 DNC C86-132877  
 TI **Prodn. of maltitol crystals** from its  
 syrup - by **crystallisation** of syrup flowing downwardly in  
 enclosure while subjected to downwardly decreasing temp. gradient.  
 DC D17 E13  
 IN GOUY, P A; LELEU, J B  
 PA (ROQF) ROQUETTE FRERES SA  
 CYC 8  
 PI EP 202165 A 861120 (8647)\* FR 8 pp  
 R: CH DE FR IT LI NL  
 FR 2581999 A 861121 (8701)  
 JP 61268696 A 861128 (8702)  
 EP 202165 B 890503 (8918) FR  
 R: CH DE FR IT LI NL  
 DE 3663143 G 890608 (8924)  
 JP 07000630 B2 950111 (9506) 5 pp  
 ADT EP 202165 A EP 86-401007 860512; FR 2581999 A FR 85-7431 850515; JP  
 61268696 A JP 86-108739 860514; JP 07000630 B2 JP 86-108739 860514  
 FDT JP 07000630 B2 Based on JP 61268696  
 PRAI FR 85-7431 850515  
 AN 86-306895 [47] WPIDS  
 AB EP 202165 A UPAB: 930922

**Prodn. of crystallised maltitol**

comprises:- (1) continuously passing upwardly, with mixing, a mass **formed by syrup and maltitol crystals** through a vertical or inclined **crystallisation zone (I)** in which is established an opt. modulated, downwardly decreasing temp. gradient of 0.2-2 deg.C/hr of treatment, (2) feeding the zone (I) near its top end, on the one hand, with **maltitol** syrup contg. at least 80 wt.% **maltitol** and at least 65% solids, and, on the other hand, with a mass subjected to **crystallisation** which is removed and recycled at an intermediate level of (I), spaced from the ends of (I), by at least 1/6 and most pref. 1/3 of the total length of (I), that mass representing 10-120 vol.% of the amt. of **maltitol** syrup

Searcher : Shears 308-4994

introduced into the zone and (3) continuously removing, near the lower end of (I), a prod. highly enriched in maltitol crystals, from which the crystals are recovered.

ADVANTAGE - The process gives improved productivity of the crystallisation operation per unit vol. of appts. used.

0/1

ABEQ EP 202165 B UPAB: 930922

Method of producing crystalline maltitol characterised by the fact that a mass formed from syrup and from crystals of maltitol is made to traverse, from top to bottom, continuously, and with malaxation, a crystallisation zone of vertical or inclined direction, in which there is established a possibly modulated temperature gradient decreasing overall downwards by 0.2 to 2 deg.C/hour, preferably 0.5 to 2 deg.C/hour and still more preferably from 0.5 to 1.2 deg.C/hour of treatment, that said crystallisation zone is supplied in the vicinity of its upper end, on the one hand, with maltitol syrup having a richness in maltitol higher than 80% by weight and a proportion of dry matter higher than 65% and, on the other hand, with mass subject to crystallisation which is taken up and recycled from an intermediate level of the cyclisation zone, spaced from its ends by at least 1/6, preferably 1/5 and still more preferably 1/3 of the total length of said zone, the amount of mass subject to crystallisation and recycled representing by volume from 40 to 110% of the amount of maltitol syrup introduced into the zone, and that there is extracted continuously, in the vicinity of the lower end of the crystallisation zone, a product highly enriched in maltitol crystals from which said crystals are recovered.

L10 ANSWER 57 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 86-299861 [46] WPIDS

DNC C86-129920

TI Prodn. of pharmaceutical or confectionery prod. with maltitol coating - by applying maltitol syrup to moving bed of cores.

DC B07 D13

IN BOURSIER, B

PA (ROQF) ROQUETTE FRERES SA; (BOUR-I) BOURSIER B

CYC 18

PI EP 201412 A 861112 (8646)\* FR 18 pp

R: BE CH DE GB IT LI NL SE

FR 2580904 A 861031 (8650)

AU 8656815 A 861106 (8651)

JP 61249349 A 861106 (8651)

NO 8601681 A 861124 (8702)

FI 8601768 A 861031 (8707)

DK 8601947 A 861031 (8709)

Searcher : Shears 308-4994



ES 8708113 A 871201 (8801)  
 EP 201412 B 890726 (8930) FR  
 R: BE CH DE GB IT LI NL SE  
 US 4840797 A 890620 (8931)  
 DE 3664551 G 890831 (8936)  
 CA 1303415 C 920616 (9230) FR  
 DK 169938 B 950410 (9519)  
 JP 07079626 B2 950830 (9539)  
 KR 9404561 B1 940525 (9610)

7 pp

ADT EP 201412 A EP 86-400937 860429; FR 2580904 A FR 85-6579 850430; JP 61249349 A JP 86-98428 860430; ES 8708113 A ES 86-554433 860428; US 4840797 A US 86-854135 860421; CA 1303415 C CA 86-507823 860429; DK 169938 B DK 86-1947 860429; JP 07079626 B2 JP 86-98428 860430; KR 9404561 B1 KR 86-3342 860430

FDT DK 169938 B Previous Publ. DK 8601947; JP 07079626 B2 Based on JP 61249349

PRAI FR 85-6579 850430

AN 86-299861 [46] WPIDS

AB EP 201412 A UPAB: 930922

Confectionery or pharmaceutical **products** have a sugar-free coating of **crystalline** material of which at least 90 wt.% is **maltitol** (I). The coating is **formed** by applying a syrup contg. at least 92, esp. over 96, wt. % (I) on solids present, and having solids content 50-70, pref. 55-65 wt. %. This is applied at below 70 (pref. 45-65) deg.C to a moving bed of the cores which are to be coated, the bed being maintained at 55, pref. 20-40, deg. C. Conditions are chosen so that at the moment of contact between syrup and cores, the syrup has a satn. level of 0.7-0.9 (pref. 0.75-0.9).

USE/ADVANTAGE - Compared with other prods. made by hard coating (e.g. using sorbital) these products have superior whiteness; a more sugar-like taste and are crisper. These coatings have a smooth, uniform and crystalline coating and are stable even under high humidity.

0/0

ABEQ EP 201412 B UPAB: 930922

Confectionery or pharmaceutical **product** provided with a sugarless coating of essentially **crystalline** nature, characterised by the fact that said coating is obtained by hard coating and comprises at least 90% by weight of **maltitol**.

ABEQ US 4840797 A UPAB: 930922

Confectionary or drug **prod.** with hard sugarless **crystalline** coating is obtd. by applying to moving core bed at temp. below 55 (20-40) deg.C **maltitol** syrup of 50-70(55-65) wt.% dry matter of which 90+(92+)(96+) wt.% is **maltitol** at temp. below 70(45-65) deg.C which corresponds to 0.70-0.90 (0.75-0.90)% saturation.

Coating may be applied in successive cycles.

USE - Smooth hard coating for chewing gum, drugs, etc. obtd.

Searcher : Shears 308-4994

economically.

L10 ANSWER 58 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 86-163560 [26] WPIDS

DNC C86-069972

TI Prodn. of maltitol - by hydrogenation of maltose syrup followed by chromatographic fractionation.

DC B03 D13 D17 E13

IN DEVOS, F; GOUY, P A; GOUY, P

PA (ROQF) ROQUETTE FRERES SA

CYC 17

PI EP 185595 A 860625 (8626)\* FR 30 pp

R: BE CH DE FR GB IT LI NL SE

FR 2575180 A 860627 (8632)

AU 8551547 A 860626 (8633)

DK 8505940 A 860621 (8638)

JP 61180795 A 860813 (8639)

BR 8506398 A 860902 (8642)

FI 8505064 A 860621 (8643)

US 4849023 A 890718 (8936)

CA 1266644 A 900313 (9018)

EP 185595 B 910403 (9114)

R: BE CH DE FR GB IT LI NL SE

DE 3582416 G 910508 (9120)

KR 9303490 B1 930501 (9421)

JP 2749570 B2 980513 (9824) 13 pp

EP 185595 B2 981209 (9902) FR

R: BE CH DE FR GB IT LI NL SE

ADT EP 185595 A EP 85-402588 851220; FR 2575180 A FR 84-19601 841220; JP 61180795 A JP 85-285912 851220; US 4849023 A US 88-143273 880106; KR 9303490 B1 KR 85-9621 851220; JP 2749570 B2 JP 85-285912 851220; EP 185595 B2 EP 85-402588 851220

FDT JP 2749570 B2 Previous Publ. JP 61180795

PRAI FR 84-19601 841220

AN 86-163560 [26] WPIDS

AB EP 185595 A UPAB: 930922

Simultaneous prodn. of a maltitol-rich prod. (I) and a maltotriitol-rich prod. (II) is effected by catalytically hydrogenating a syrup contg. at least 50% maltose and chromatographically fractionating the prod.

Pref. fractionation conditions are such that (I) contains, on a dry basis, at least 87 (esp. 87-95.5) wt.% maltitol, less than 1 (esp. less than 0.6) wt.% of polyols with a DP of 4 or more, less than 5 (esp. less than 2), wt.% sorbitol and 2.5-13% maltotriitol.

USE/ADVANTAGE - (I) is useful as a starting material for prodn. of **crystalline maltitol** or as a sweetener or humectant in foodstuffs, chewing gum, pharmaceutical prods., etc. The process gives a **maltitol-rich** syrup which is practically free of oligomers with a DP of 4 or more

Searcher : Shears 308-4994

and contains very little sorbitol and maltotriitol.

0/2

ABEQ EP 185595 B UPAB: 930922

Process for the simultaneous preparation of a syrup rich in maltitol suitable to obtain crystallised maltitol and of a syrup rich in maltotritol comprising: the liquefaction of a starch milk, the treatment of the liquefied starch milk by the action of a saccharifying enzyme in order to obtain a maltose syrup, the catalytic hydrogenation of the said maltose syrup with Ruthenium or Raney nickel catalysts in order to obtain a maltitol syrup, the said process being characterised by the fact that a starch milk having a dry matter content of 25 to 45% by weight is subjected to a liquefaction until a Dextrose-Equivalent value equal or higher than 2, that the liquefied starch milk is subjected to an enzymatic saccharification until obtention of a maltose syrup having a maltose content from only 50 to 80% by weight, that the said maltose syrup is hydrogenated by enzymatic route in order to obtain a maltitol syrup, this syrup containing also sorbitol, maltotritol and polyols of degree of polymerisation greater than or equal to 4, that the said maltitol syrup is submitted to a chromatographic fractionation providing a fraction rich in sorbitol, a fraction rich in polyols of degree of polymerisation greater than or equal to 4, a fraction of syrup rich in maltotritol and a fraction of syrup rich in maltitol, the process conditions of the said chromatographic fractionation step being selected in such a way that the said fraction of syrup rich in maltitol comprises, the percentages being expressed by weight on the basis of the dry matter content: at least 87% of maltitol, preferably from 87 to 97.5% and, still more preferably, from 87 to 95.5%, less than 1% of polyols of degree of polymerisation greater than or equal to 4, preferably less than 0.70% and, still more preferably, less than 0.60%, less than 5% of sorbitol, preferably less than 3% and, still more preferably, less than 2%, a proportion of maltotritol comprises between 2.5% and 13% and that the said fraction of syrup

ABEQ US 4849023 A UPAB: 930922

Syrup rich in maltitol proper is prepd. by (a) liquefying a starch milk; (b) forming maltose syrup by adding a saccharifying enzyme; and (c) catalytically hydrogenating syrup using ruthenium or Raney nickel to form prod. Starch milk used has dry matter content of 25-45 wt.% and is liquefied to dextrose equiv. 2-25.

Saccharification comprises use of vegetable or bacterial beta-amylase to form a syrup contg. 50-80 wt.% maltose. Maltose syrup is hydrogenated to a prod. also contg. sorbitol, maltotriol and polyols of deg. of polymerisation 4 or more. Maltose syrup is opt. chromatographically fractionated to form fractions rich in these by-prods., such that maltitol-rich fraction contains 87 wt.% or more maltitol, less than 1 wt.% of polyols, less than 5 wt.% of sorbitol, and 2.5-13 wt.% of maltotriitol. Maltitol-rich fraction

Searcher : Shears 308-4994

is collected.

USE - As sweetening or moistening agent in edible prods., e.g. confectionery, pastries, creams, drinks, jams, etc.

L10 ANSWER 59 OF 68 MEDLINE DUPLICATE 5  
 AN 84295372 MEDLINE  
 DN 84295372  
 TI Bacterial reversion assay and micronucleus test carried out on hydrogenated glucose syrups 'Malti-Towa' (powder) and maltitol crystal.  
 AU Takizawa Y; Hachiya N  
 SO MUTATION RESEARCH, (1984 Aug-Sep) 137 (2-3) 133-7.  
 Journal code: NNA. ISSN: 0027-5107.  
 CY Netherlands  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals; Cancer Journals  
 EM 198412  
 AB Two preparations of maltitol (4-O-alpha-D-glucopyranosyl-D-sorbitol), hydrogenated glucose syrups and maltitol crystal, were examined for genotoxic potential by a battery of short-term tests. In the bacterial reversion assay, maltitol induced no detectable revertants in any of the tester strains, Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538, or Escherichia coli WP2/pKM101 at doses of 0.5-50 mg per plate with and without rat liver S9 mix. In the micronucleus test, no significant increase in the frequency of micronucleated erythrocytes was observed in bone marrow of mice after administration of the two preparations at 3.75-30 g per kg by gastric intubation.

L10 ANSWER 60 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 83-798889 [43] WPIDS  
 DNC C83-103894  
 TI Pulverised reduced maltose syrup prodn. - involves concn. of the syrup, addn. of maltitol and maltotriitol crystals and then pulverising.  
 DC D13  
 PA (NIKM) NIKKEN CHEM KK  
 CYC 1  
 PI JP 58158145 A 830920 (8343)\* 4 pp  
 JP 01047140 B 891012 (8945)  
 ADT JP 58158145 A JP 82-39326 820315  
 PRAI JP 82-39326 820315  
 AN 83-798889 [43] WPIDS  
 AB JP58158145 A UPAB: 930925  
 In the process, a reduced maltose syrup is concentrated, crystals or maltitol and maltotriitol are added into the concentrate as crystal-seed, and the  
 Searcher, : Shears 308-4994

formed crystal is made into a powder by a usual method.

Reduced maltose syrup is composed mainly of maltitol and also contains appreciable amts. of sorbitol, maltotriitol and dextrin alcohol. It has mild sweetness and is used in dietary food because its essential component, maltitol, is a low-calorie sugar. Reduced maltose syrup has formerly been difficult to turn into a powder, but the present method affords pulverised (I).

The raw reduced maltose syrup contains more than 50 wt.% maltitol and more than 10 wt.% maltotriitol.

0/1

L10 ANSWER 61 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 83-17838K [08] WPIDS  
 TI Aq. maltitol syrup contg. sorbitol - useful for gelling to give base for pharmaceuticals, cosmetics, foods, tooth pastes etc..  
 DC D17  
 PA (ICIL) ICI AMERICAS INC; (LYNC-I) LYNCH M J  
 CYC 13  
 PI EP 72080 A 830216 (8308)\* EN 14 pp  
 R: AT BE CH DE FR GB IT LI LU NL SE  
 US 4381318 A 830426 (8319)  
 CA 1166163 A 840424 (8421)  
 US 4448778 A 840515 (8422)  
 US 4471001 A 840911 (8439)  
 ADT US 4381318 A US 82-395923 820707; US 4448778 A US 83-548695 831104  
 PRAI US 81-222300 810105; US 81-289465 810803; US 82-395923 820707;  
 US 83-548695 831104  
 AN 83-17838K [08] WPIDS  
 AB EP 72080 A UPAB: 930925  
 Aq. maltitol (I)-contg. syrup resulting from the hydrogenation of maltose-rich syrups comprising 25-94 wt.% (I), 2-30 wt.% sorbitol (II) and minor amts. of higher saccharides and reducing sugars are new. The ingredients are calculated on a dry basis and the (I) to (II) wt. ratio is not less than 2:1; and the syrup has a total dissolved solids content of 60-85 wt.% (on a wet basis) is novel. Non-crystallising edible gel consisting of an aq. (I)-contg. syrup as defined above together with 5-10 wt.% of gelling agent (III) is new.  
 Clear transparent gels can be obtd. economically from the syrups, and the gels remain attractive over long periods of time even when exposed to atmos. conditions. The syrups are surprisingly resistant to the proliferation of airborne micro-organisms when the total solids content is over 75 wt.%. The gels are useful bases for cosmetic, pharmaceutical, confectionary and food preps., esp. for tooth pastes, decorating coating for foods and gelled cough remedies.  
 ABEQ US 4448778 A UPAB: 930925  
 Non-crystallising edible gel used in formulating  
 Searcher : Shears 308-4994

cosmetics, pharmaceuticals, confections and food specialties, comprises an aq. maltitol-contg. syrup formed from the hydrogenation of maltose-rich syrups contg. 36-49 wt.% maltitol, 11-14 wt.% sorbitol and minor amts. of higher saccharides and reducing sugars (wt.% w.r.t. dry basis). Syrup has solids content of 75-85 wt.% (wet basis) and 5-10 wt.% of gelling agent.

Pref. gelling agent has refractive index of 1.33-1.5, and comprises amorphous silica of particle size 3-10 m-crons and surface area 300-1000 sq.m.per g..

Gel is esp. used in a gelled cough remedy and further comprises minor amts. of cough suppressants, expectorants and antihistamines.

ABEQ US 4471001 A UPAB: 930925

A non-crystallising edible gel comprises a maltitol syrup obtd. by hydrogenation of a maltose rich syrup contg. 25-94 (pref. 36-49) wt.% maltitol, 2-30 (pref. 11-14) wt.% sorbitol (with the maltitol:sorbitol wt. ratio being at least 2:1) and minor amts. of higher saccharides and reducing sugars (dry wt. basis). The syrup has a total dissolved solids content of 60-85 (pref. 70-85) wt.% and also contains 5-10 wt.% of a gelling agent and minor amts. of artificial sweeteners, colouring agents, flavouring agents and additional thickeners. The gelling agent pref. has a refractive index of 1.33-1.5 and is pref. amorphous silica of average particle size 3-10 microns and surface area 300-1000 sq.m/g.

USE - The gels are used in formulating confections and food decorating specialities.

L10 ANSWER 62 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 82-50258E [25] WPIDS

TI Crystalline anhydrous maltitol - useful as non-hygroscopic low-calorie sweetener.

DC A26 B03 B07 D13 D17 E13

IN HIJIYA, H; HIRAO, M; MIYAKE, T

PA (HAYB) HAYASHIBARA SEIBUTSU KAGAKU

CYC 11

PI BE 891442 A 820611 (8225)\* 35 pp

JP 57134498 A 820819 (8239)

SE 8106884 A 820913 (8239)

FR 2499576 A 820813 (8240)

FI 8103788 A 820930 (8242)

GB 2097004 A 821027 (8243)

DE 3146085 A 820909 (8246)

US 4408041 A 831004 (8342)

GB 2097004 B 850313 (8511)

CA 1186304 A 850430 (8522)

SE 8600756 A 860219 (8626)

SE 452623 B 871207 (8751)

US 4717765 A 880105 (8803)

JP 63002439 B 880119 (8806)

Searcher : Shears 308-4994

US 4725387 A 880216 (8810)  
 JP 63177765 A 880721 (8835)  
 JP 63190895 A 880808 (8837)  
 KR 8800456 B 880406 (8837)  
 US 4789559 A 881206 (8851)  
 SE 457261 B 881212 (8901)  
 JP 01003468 B 890120 (8907)  
 DE 3146085 C 890323 (8912)  
 JP 01165346 A 890629 (8932)  
 JP 01034998 B 890721 (8933)  
 US 4917916 A 900417 (9020)  
 JP 04026817 B 920508 (9223)  
 IT 1226053 B 901210 (9226)

13 pp

ADT JP 57134498 A JP 81-19512 810212; GB 2097004 A GB 81-34909 811119;  
 DE 3146085 A DE 81-3146085 811129; US 4408041 A US 85-809831 851209;  
 US 4717765 A US 85-696584 850130; JP 63002439 B JP 87-195386 ;  
 US 4725387 A US 87-89418 870825; JP 63177765 A JP 87-195387 801211;  
 JP 63190895 A JP 87-278304 801211; JP 01003468 B JP 78-195387  
 ; US 4917916 A US 86-843854 860321; JP 04026817 B Div ex JP  
 87-195387 810212, JP 88-278304 810212; IT 1226053 B IT 81-49786  
 811127

FDT JP 04026817 B Based on JP 01165346

PRAI JP 81-19512 810212; JP 87-195386 801211; JP 87-195387 801211;  
 JP 87-278304 801211

AN 82-50258E [25] WPIDS

AB BE 891442 A UPAB: 930915

Crystalline anhydrous maltitol (I) and crystalline hydrogenated starch hydrolysates contg. (I), pref. in an amt. of at least 65% (dry basis) are new.

(I) is a non-hygroscopic and non-deliquescent solid (m.pt. 146.5-147.0 deg.C) which can be used as a low-calorie sweetener or in the mfr. of foods, drinks, cosmetics, pharmaceuticals, etc. It dissolves readily in water and can easily be powdered, granulated, tabletted, etc., and can be converted into derivs. (e.g. ethers or esters).

ABEQ GB 2097004 B UPAB: 930915

Anhydrous maltitol in crystalline form

ABEQ US 4717765 A UPAB: 930915

Pulverulent compsn. is produced by (1) providing a 0-95 deg.C aq. maltitol soln. contg. 65-95% dissolved solids and at least 65% maltitol (based on the solids) and having supersaturation degree 1.05-1.50 based in the dissolved solids wt.; (2) seeding the soln. with anhydrous maltitol seeds crystals; (3) cooling the soln. to obtain a crystal suspension; and (4) forming a pulverulent solid contg. at least 65% anhydrous maltitol and balance sorbital and higher sugar alcohols.

USE/ADVANTAGE - Compsn. is non-hygroscopic and free-flowing. It

Searcher : Shears 308-4994

can be used in prodn. of foods, cosmetics, drugs, etc..

ABEQ US 4725387 A UPAB: 930915

Shaped body (I) contg. solid **maltitol** is produced by moulding the ingredients into the desired shaped, the improvement being that (I) has no hygroscopicity attributable to the **maltitol**. The solid **maltitol** is selected from anhydrous **crystals** (II) of maltitol and a whole **crystalline** hydrogenated starch hydrolysate mixt solid contg **crystals** (II). Pref the **maltitol** is in granular form and the moulding step comprises slightly moistening the granular **maltitol** and moulding to the desired shape, under a slightly elevated pressure.

USE - (I) and (II) are useful for improving the properties of pre-packed foods and/or preventing the sticking and adhesion of the content of the package e.g. for chewing gum.

ABEQ US 4789559 A UPAB: 930915

Sweetening agent comprises anhydrous **maltitol crystals**, completely hydrogenated starch hydrolysate, and opt. additives. The **prods.** are pressed into tablet form, and are not subject to deliquescence or excessive hygroscopicity.

USE - The **prods.** are utilised in confectionary, sweets, chewing gums, etc., and are suitable for diabetics but do not add to obesity or dental decay.

ABEQ DE 3146085 C UPAB: 930915

Flat Xonotlite (calcium hydrosilicate) primary crystals, matted together and crosslinked, are obtd. by filtration at 0.5-11.0 (1.6-3.0= MPa of secondary particles of the Xonotlite type suspended in water.

USE/ADVANTAGE - The flat crystals are easily obtd. from the spherical secondary particles and are useful as filler for resin, paper, or card board structures.

ABEQ US 4917916 A UPAB: 930915

Foodstuff contg. non-hygroscopic free-flowing sweetener is produced, by incorporating anhydrous **crystals** of **maltitol** or a whole **crystalline** hydrogenated starch hydrolysate mixt. solid contg. anhydrous **maltitol crystals**.

**Maltitol** is obtd. by (a) forming an aq. soln. at 40-95deg.C contg. 65-95wt.% dry solids and 65wt% **maltitol** w.r.t. dry solids, such that saturation deg. of soln. ie. 1.05-1.50; (b) gradually cooling and allowing to stand for a time to effect **crystallisation**, and (c) recovering anhydrous **crystals** from suspension obtd.

USE - In sweetened low-calorie or low-cariogenic foodstuff.

L10 ANSWER 63 OF 68 LIFESCI COPYRIGHT 1999 CSA

AN 82:78035 LIFESCI

TI Malbit sweetener arrives in the UK.

Searcher : Shears 308-4994



AU Anon.  
 SO FOOD FLAVOUR. PROCESS., (1982) vol. 5, no. 6, p. 25.  
 DT Journal  
 FS R  
 LA English  
 SL English  
 AB The Italian ingredients supplier, Anic, has recently introduced a new bulk sweetener, **maltitol**, marketed under the trade name Malbit. Malbit is available in liquid (syrup) and **crystalline forms**. Malbit **crystalline** contains 90% **maltitol**, and consists of non-hygroscopic white **crystals**, is easily soluble in water, and has a sweetness potential of 0.8-0.9. Malbit liquid contains 56% **maltitol**, is transparent and colourless, non-**crystallising**, moisture retaining and has a sweetness potential of 0.6. The sweetness and taste of these **products** are very close to sucrose, they have no after-taste, are odourless, and give the same bulking effect (mouth-feel, texture) as sucrose in the final **product**.

L10 ANSWER 64 OF 68 CIN COPYRIGHT 1999 ACS  
 AN 10(41):39294E CIN  
 SO Jpn. Econ. J., 22 Sep 1981 (810922), p. 11. ISSN: 0021-4388; CODEN: JECJAU.  
 LA English  
 AB Two companies will shortly **produce** a non-caloric sweetener agent using what it said to be the world's first unhydrous **crystalline maltitol** technology developed by a Japanese firm. They are Japan Maize Products Co. and Towa Kasei Kogyo Co., both top-ranking sugar alcohol makers of Tokyo. Despite the wide attention paid to maltitol, the substance had been rarely used as pulverizing it had been impossible. But Hayashibara Biochemical Laboratories, Inc., of Okayama City successfully developed a technology for pulverization for the first time in the world early this year. Using the technology, Japan Maize Products and Towa Kasei Kogyo will start mass-production of the sweetener.

L10 ANSWER 65 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 75-56509W [34] WPIDS  
 TI Iso-maltitol or iso-maltosyl-sorbitol used as sweetener - in prodn. of sweet, low-calorie foods and drinks.  
 DC D13 E13  
 PA (HAYB) HAYASHIBARA KEN  
 CYC 1  
 PI JP 50022105 B 750728 (7534)\*  
 PRAI JP 70-119344 701228  
 AN 75-56509W [34] WPIDS  
 AB JP75022105 B UPAB: 930831  
 In a method of making foods and drinks isomaltitol or  
 Searcher : Shears 308-4994

isomaltosyl-sorbitol is used as sweetening agent. The agent has a refreshing sweetness and milk aftertaste; it **forms** no **crystalline** pptes. it is not affected by amylases in the process of **prepn.** it is resistant against most lactic acid bacteria; it is stable below 200 degrees C and it can be transparent or lustrous. It can be used in carbonated soft drinks, fermented milk, fruit juice or concentrate, candy, sponge cake jelly, biscuits, canned meat **prods.** powered milk, bottled fruit, etc. Iso-maltitol prevents browning and promotes dissolving of powdered milk in water. It stabilises colours and dyes in foods and inhibits CO2 evolution in canned food. It is suitable for use in dietetic **prods.** for diabetics.

L10 ANSWER 66 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 75-17986W [11] WPIDS  
 TI Maltose-rich soln. by enzymatic conversion of starch - using alpha-1,6-glucosidase and alpha-1,4-glucosidase on inert support.  
 DC A97 D17  
 PA (STDx) STADEx AB  
 CYC 4  
 PI DE 2441255 A 750306 (7511)\*  
 SE 7311642 A 750407 (7518)  
 GB 1426997 A 760303 (7610)  
 US 3996107 A 761206 (7651)  
 PRAI SE 73-11642 730828  
 AN 75-17986W [11] WPIDS  
 AB DE 2441255 A UPAB: 930831  
 Maltose-rich solns. **produced** by enzymatic conversion of starch are obtd. by contacting a soln. contg. starch or its partial hydrolysate with a two-enzyme system comprising an alpha-1,6-glucosidase pref. pullulanase or isoamylase and an alpha-1,4-glucosidase pref. beta-amylase jointly fixed to an inert support by chemical bonds, e. g. covalent bonds or physical means e. g. adsorption or steric inclusion. The maltose-rich solns. can be used in confectionary, they are less apt to **crystallisation** than glucose rich soln, s and are nonhygroscopic, they can also be used in beer **prodn.** cultivation of microorganisms **producing** enzymes or antibiotics. Maltose can be hydrogenated to **produce maltitol**, a sweetening agent.

L10 ANSWER 67 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 74-67240V [38] WPIDS  
 TI Sweetening chewing gum with maltitol - which improves aftertaste, retains moisture and avoids crystallisation.  
 DC A97 D13  
 PA (NIKM) (EISA ); (EISA) EISAI CO LTD  
 CYC 1  
 PI JP 49032067 B 740827 (7438)\*

Searcher : Shears 308-4994

PRAI JP 70-121594 701229

AN 74-67240V [38] WPIDS

AB JP74032067 B UPAB: 930831

**Maltitol** of similar sweetness to sucrose but less harmful to teeth as oral lactic acid bacteria do not **produce** acids or mucopolysaccharides, is pref. added in an amt. 20-60% of the total epsilon m. In an example 200 pts. polyvinylacetate, 50 pts. natural chicle, 20 pts. butylphthalylbutylglycolate 15 pts. calcium carbonate, 10 pts. stearyl monoglyceride 5 pts. sorbitan monostearate, 250g cane sugar, 270g **maltitol** 100 pts. **crystalline** glucose, 30 pts. honey, 40g water, 10g orange flavour and colouring (Y-No.5) were mixed to **prepare** a chewing gum.

L10 ANSWER 68 OF 68 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 74-84417V [49] WPIDS

TI Fatty acid esters of higher polyols and glycosides - by direct esterification in presence of soap, reducing formation of anhydro cpds.

DC A41 D13 E17 G02

PA (AMCF) ACF AMSTERDAM CHEMI NV; (CCAC-N) CCA CHEM COMB AMST; (CCAC-N) CCA CHEM COMB AMSTERDAM; (CHAM-N) CHEM COMB AMSTERDAM

CYC 10

PI BE 815069 A 741118 (7449)\*

NL 7306759 A 741119 (7449)

DE 2423278 A 741205 (7450)

DK 7402632 A 741223 (7503)

JP 50046620 A 750424 (7525)

FR 2245606 A 750530 (7527)

US 3951945 A 760420 (7618)

GB 1457569 A 761207 (7650)

IT 1019613 B 771130 (7811)

NL 158165 B 781016 (7845)

CH 609961 A 790330 (7916)

JP 59012100 B 840321 (8415)

PRAI NL 73-6759 730515

AN 74-84417V [49] WPIDS

AB BE 815069 A UPAB: 930831

Carboxylic acid esters of linear aliphatic polyols of **formula**  $C_nH_{n+2}(OH)_n$ , where n is not <4, or esters of hydrophilic derivs. of these polyols, are **prepd.** by esterifying the fatty acid with the polyol or glycoside in presence of a fatty acid soap, at 100-190 degrees C, with removal of the water **formed** in the reaction; the esters may be converted further. Conversion of e.g. sorbitol to sorbitan, is only 3-5%. Less soap is needed than in prior art micro-emulsion process. The hydrophilic-lipophilic balance **crystallisation** behaviour and m.pt. of the esters can be varied by choice of reactants and by post-reaction of the esters with 2-6C water-sol. organic acids. The

Searcher : Shears 308-4994

polyalcohol glycoside esters of fatty acids, e.g. esters of lactitol or **maltitol**, are new cpds. The esters are non-toxic and non-irritating, and are used in the food, pharmaceutical and cosmetic industries and in agriculture, as emulsifiers, baking additives, surfactants, starch and protein complexers, **crystal** modifiers, viscosity controllers, anti-spatter agents and antioxidants. Apples. include use in margarine, salad cream, soft drinks, bread and other foodstuffs. Higher-esterified **prods.** of fatty acids from drying oils can be used to **prepare** resins for the paint industry.

=> d.his l11- ful; d 1-47 bib abs

(FILE 'FSTA, CABA, AGRICOLA' ENTERED AT 17:09:43 ON 04 MAR 1999)

L11 62 SEA ABB=ON PLU=ON L2  
 L12 0 SEA ABB=ON PLU=ON L11 AND (PRISM? OR BIPYRAM? OR PYRAM? OR TETRAHEDRON? OR TETRA HEDRON?) *← claims 1,2,4,5 & 7*  
 L13 48 SEA ABB=ON PLU=ON L11(S) (MANUF? OR PROD? OR PREP? OR FORM## OR FORMING) *← claims 3,6,8 & 9*  
 L14 47 DUP REM L13 (1 DUPLICATE REMOVED)

L14 ANSWER 1 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 1998(10):M1204 FSTA FS FSTA  
 TI Maltitol - new opportunities for baking.  
 AU Desbonnets, P.  
 SO International Food Ingredients, (1998) No. 2, 39-40.  
 ISSN: 0924-5863.

DT Journal  
 LA English  
 AB **Maltitol** is used in the US in the **production** of no-sugar added bakery **products**. The potential application of **maltitol** in European bakery **products** is discussed with respect to: physical properties (solubility, stability, hygroscopicity, viscosity); comparison of physical properties with sucrose; **crystalline maltitol**; nutritional effects; properties in bakery **products**; and suitability in baking applications (cookies and biscuits, comparisons with sucrose and other polyols).

L14 ANSWER 2 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 1998(05):A0636 FSTA FS FSTA  
 TI Present and future of development of starch oligosaccharides.  
 AU Nakakuki, T.  
 CS Res. Inst., Nihon Shokuhin Kako Co. Ltd., 30 Tajima Fuji, Shizuoka 417, Japan  
 SO Journal of Applied Glycoscience, (1997) 44 (3) 414-416, 7 ref.  
 ISSN: 1340-3494.  
 DT Journal  
 LA English

Searcher : Shears 308-4994

AB Applications of starch-derived oligosaccharides are considered, including: chemical classification of oligosaccharides; use of maltose as an intravenous nutrient and its hydrogenation to produce maltitol, a low-calorific sweetener; enzymic synthesis of oligosaccharides; oligosaccharides as raw materials in 'foods for specific health use' (FOSHU), a Japanese legal status; use of larger oligosaccharides with a low-associated sweetness as food additives to reduce starch retrogradation and prevent sucrose crystallization; application of cyclodextrins as receptor molecules in foods, e.g. to stabilize colours and flavours; oligosaccharides as bifidus factors; and future trends.

L14 ANSWER 3 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 97:45051 CABA  
 DN 970303245  
 TI An opportunity for new developments  
 CS Roquette  
 SO Food Ingredients and Analysis International, (1997) No. March/April, pp. 42-43.  
 DT Journal  
 LA English  
 AB In response to the demand for sugar-free confectionery, Roquette studied starch-derived alternatives. Some functionalities and applications of glucose syrups and polyols are outlined. The Candilys process (EP 720820) permits hard boiled sweets to be made from glucose syrup plus little or no sucrose; alternatively the Lycandy technique can be used, in which a candy mass is made from maltitol syrup (Lycasin) and given a non-hygroscopic coating of e.g. Maltisorb 70/88. Chewing gum and its coating can be made using Lycasin and sorbitol in place of glucose syrup and sucrose. Maltitol can replace sucrose in chocolate, and tablets can be made with sorbitol, as it forms dendritic crystals. Various starch products can be used to make gums and jellies.

L14 ANSWER 4 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 1998(01):L0032 FSTA FS FSTA  
 TI Sweetening agents: the wider choice.  
 AU Dalzell, J.  
 CS Leatherhead Food Res. Ass., Randalls Rd., Leatherhead KT22 7RY, UK  
 SO Food Processing, UK, (1997) 66 (4) 23-24.  
 ISSN: 0264-9462.  
 DT Journal  
 LA English  
 AB The increased variety of sweeteners available to food manufacturers is discussed; this is the result of an EC Directive permitting a broader spectrum of sweeteners to be used in many European countries. Aspects considered include: properties of  
 Searcher : Shears 308-4994

sugar (sweetener, bulking agent, preservative, flavour enhancer, raw material in the Maillard reaction); use of a combination of sweeteners in order to mirror the role of sugar; properties of bulk sweeteners (**crystalline** fructose, isomalt, lactitol, **maltitol**, mannitol, sorbitol and xylitol); characteristics of intense sweeteners (acesulfame-K, aspartame, cyclamate, neohesperidin DC, saccharin and thaumatin); safety considerations in the use of sucralose and alitame; and unique properties of sweeteners that allow development of novel foods (e.g. mint flavoured sugar confectionery).

L14 ANSWER 5 OF 47 FSTA COPYRIGHT 1999 IFIS DUPLICATE 1  
 AN 1998(06):K0087 FSTA FS FSTA  
 TI Sugar-free chocolate.  
 AU Gonze, M.; Schueren, F. van der  
 CS Cerestar, Vilvoorde, Belgium  
 SO Confectionery Production, (1997) 63 (6) 15-17.  
 ISSN: 0010-5473.  
 DT Journal  
 LA English  
 AB Research into the development of low-sugar low-calorie chocolate by Cerestar, Vilvoorde, Belgium is discussed. Aspects considered include: the **production** process for sucrose-based standard chocolate (35-50% sucrose; **preparation** of chocolate paste, refining of the paste, and conching); the key role of final particle size and hygroscopicity of the sweetener used in chocolate **manufacture** in determining the final texture and mass viscosity of chocolate; characteristics required in a successful sugar-free chocolate formulation (sweetness, mouthfeel, taste, shelf life, plastic viscosity and yield value); trials by Cerestar in which the properties of chocolate formulated using C\*Maltidex CH 16385 (an anhydrous, high purity, **crystalline maltitol** powder), sorbitol powder or amorphous **maltitol** powder were compared with those of sucrose-based standard chocolate; processing conditions required to **produce** an acceptable sorbitol chocolate (wet conching and high conching temp.); the poor quality of chocolate made using amorphous **maltitol** powder regardless of processing conditions used; the excellent sensory and physicochemical properties of C\*Maltidex CH 16385 for replacement of sucrose in chocolate; calorie reductions achieved when all of the sucrose in chocolate is replaced by polyols (12-15% only); evaluation of combinations of C\*Maltidex CH 16385 and low-calorie bulking agents (polydextrose and inulin) in chocolate **manufacture**; development of a hybrid conching system (DRYAVET) for **producing** sucrose-free low-calorie (18% reduction) chocolate using C\*Maltidex CH 16385 and low-calorie bulking agents; tests to investigate the possibility of **producing** further calorie reductions (up to 30%; by decreasing cocoa butter, increasing cocoa

Searcher : Shears 308-4994

liquor and bulk sweetener contents, and addition of polyglycerol polyricinoleate with lecithin) in chocolate made using C\*Maltidex CH 16385 and low-calorie bulking agents; and trials evaluating C\*Maltidex CH 16385-based chocolate for use in coating nuts.

L14 ANSWER 6 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 97(03):T0048 FSTA FS FSTA

TI [Maltitol preparation and its process of manufacture.]

AU Caboche, J. J.

CS Roquette Freres SA

SO French Patent Application

PI FR 2732343 A1 1996

PRAI FR 95-03732 29 Mar. 1995

DT Patent (Patent)

LA French

AB A new **crystalline maltitol preparation**

is described which has high purity, porous structure and low bulk density. Its functional properties are advantageous for its use as a sweetener in foods. [From summ.] (AJDW)

L14 ANSWER 7 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 97(04):K0005 FSTA FS FSTA

TI A chocolate revolution.

AU Bot, Y. le

CS Roquette, 62136 Lestrem, France

SO Confectionery Production, (1996) 62 (7) 10-11.

ISSN: 0010-5473.

DT Journal

LA English

AB Properties of high purity **crystalline maltitol**

(MALTISORB.RTM., Roquette, France) and its use in sugar free chocolate are discussed. Aspects considered include: characteristics that sugar substitutes need to replace successfully sugar in chocolate; **preparation of MALTISORB.RTM. by purification and crystallization of maltitol syrup**; properties of MALTISORB.RTM. that make it ideal for use in sugar free chocolate (high m.p., min. water of **crystallization**, min. hygroscopicity and low **crystal surface area**); properties of MALTISORB.RTM. in comparison with sucrose and other polyols; sensory criteria that MALTISORB.RTM.-containing chocolate needs to fulfil in order to be acceptable to consumers (sweetening power similar to that of sucrose, reduced cooling effect, and smooth texture combined with firmness); additional properties that MALTISORB.RTM. supplies to chocolate above those of sucrose (noncariogenicity, low calorie rating and suitability for diabetics); and effects of use of MALTISORB.RTM. on changes in the image of chocolate. (HAS)

L14 ANSWER 8 OF 47 FSTA COPYRIGHT 1999 IFIS

Searcher : Shears 308-4994

AN 96(05):L0030 FSTA FS FSTA  
 TI [Non-crystallizing syrup.]  
 Nicht-auskristallisierender Sirup.  
 AU Weiner, R.  
 CS Worlee Sweet E. H. Worlee & Co. GmbH  
 SO German Federal Republic Patent  
 PI DE 4411595 C1 1995  
 PRAI DE 94-4411595 30 Mar. 1994 (Worlee, 22113 Hamburg, Germany)  
 DT Patent (Patent)  
 LA German

AB A non-crystallizing syrup contains: 1-95% by wt. non-hygroscopic and non-crystallization inhibiting sugar alcohol; 30-95% by wt. polydextrose and/or maltitol syrup and/or sorbitol, the concn. of each of these constituents (where present) being .gtoreq.30% by wt., and/or 0.01-2% by wt. cellulose derivative; 0-10% by wt. intensive sweetener; and 4.0-69% by wt. water. Normal additives may also be included. A method for manufacture of this syrup is described based on mixing the ingredients and heating the mix in a sealed container at 75-95.degree. C with stirring until all the ingredients have dissolved. (AJDW)

L14 ANSWER 9 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 96(12):K0016 FSTA FS FSTA  
 TI [Whey protein concentrates in sugar confectionery emulsions. II. Properties of concentrated protein-stabilized emulsions.]  
 Molkenproteinkonzentrate in Suesswarenemulsionen. II.  
 Eigenschaften konzentrierter proteinstabilisierter Emulsionen.  
 AU Muschiolik, G.; Draeger, S.  
 CS Fachgruppe Umweltvertraegliche Biopolymere, Zentrum fuer Umweltwissenschaften, Univ. Potsdam, 14558 Bergholz-Rehbruecke, Germany  
 SO Zucker- und Suesswarenwirtschaft, (1995) 48 (7/8) 314-316, 6 ref. ISSN: 0373-0204.  
 DT Journal  
 LA German  
 AB Whey protein concentrate (WPC) emulsions were used to study their effects on the consistency of energy-reduced model nougat cremes (moisture content .ltoreq.21%). WPC content in the emulsions ranged from 1 to 5%, and recipe variations involved substitution of Litesse, sorbitol, fructose or maltitol for sucrose, incorporation of Gelatin 220 and XPS xanthan, and substitution of sunflower oil for the soft fat. Processing temp. was shown to have a marked effect on the compression resistance of the the model cremes: at 20.degree. C it was considerably higher in all cases than at 30.degree. C. Advantages and disadvantages of using protein-stabilized WPC emulsions for manufacture of sugar confectionery are compared. Advantages include: more flexible flow behaviour and consistency; no fat deposition; use of fats with high

Searcher : Shears 308-4994



m.p.; and less influence of fat **crystallization** on sensory properties. Disadvantages are: a more complex **manufacturing** process; prior knowledge of the protein's properties is essential; unsuitability for moisture-free fillings; and need for fat content of fillings to be kept <40%. Some practical hints for achieving the essential properties of a WPC (high solubility and boundary surface activity, adequate protein content, good fat dispersibility) are given. [See preceding abstr. for part I.] (HBr)

L14 ANSWER 10 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 96(04):T0029 FSTA FS FSTA

TI [Suitability of sugar substitutes for biscuits and high ratio cakes.]

Eignung von Zuckeraustauschstoffen fuer Biskuitgebaecke und Ruehrkuchen.

AU Ludewig, H. G.; Laukamp, M.; Nolting, D.

CS Fachbereich Lebensmitteltech., Schwerpunkt Getreidetechn., Fachhochschule Lippe, D-32657 Lemgo, Germany

SO Getreide, Mehl und Brot, (1995) 49 (5) 309-314, 7 ref.

DT Journal

LA German

AB To determine their suitability as sugar substitutes, sorbitol, xylitol, mannitol, fructose, lactitol and isomalt were used to **manufacture** biscuits and high ratio cakes by the standard baking test method, sucrose serving as control. For the biscuits, at a substitution level of 100%, the substitutes gave generally reasonable results, although the monosaccharide alcohols left a sharp aftertaste, the disaccharide alcohols were insufficiently sweet, and mannitol proved totally unsuitable because of its poor solubility. However, 50:50 mixtures of xylitol/sorbitol, sucrose/mannitol and isomalt/lactitol, and mixtures incorporating 25% xylitol and sorbitol gave good results from both **production** and sensory viewpoints. For the high ratio cakes, 100% substitution by the monosaccharide alcohols and fructose proved unsatisfactory; the disaccharide alcohols gave better results, although there was some surface **crystallization**, and lactitol **produced** a very friable crumb. A mixture of 80% **maltitol** with sorbitol, xylitol and fructose (to improve sweetness and browning) is recommended. (HBr)

L14 ANSWER 11 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 96(07):K0007 FSTA FS FSTA

TI **Crystalline maltitol** in the **manufacture** of chocolate.

AU Happel, B. L.

SO Manufacturing Confectioner, (1995) 75 (11) 96-99, 4 ref. ISSN: 0025-2573.

DT Journal

Searcher : Shears 308-4994

LA English

AB The use of **maltitol** (.alpha.-1,4-glucosylsorbitol) in sugar free chocolate **manufacture** is discussed. Aspects considered include: characteristics of **maltitol** (high sweetness (90% that of sucrose), low cooling effect, high m.p., low hygroscopicity and existence of an anhydrous form); **manufacture** of **maltitol** (hydrogenation of maltose); processing sugarless chocolate with **crystalline maltitol** (refining and conching); comparison of **maltitol** chocolate with sucrose chocolate; metabolism of **maltitol**; cariogenicity of **maltitol**; and labelling of **products** containing **maltitol**. (VAJ)

L14 ANSWER 12 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 96(08):K0018 FSTA FS FSTA

TI Isomalt in hard candy applications.

AU Fritzsching, B.

SO Manufacturing Confectioner, (1995) 75 (11) 65-73, 11 ref.  
ISSN: 0025-2573.

DT Journal

LA English

AB **Manufacture** and properties of isomalt are discussed with reference to its use in sugar free hard candy. Aspects considered include: development of isomalt; **manufacture** of isomalt; **crystal** structure and surface properties; physiological properties (low in calories, non-cariogenic, suitable for people with diabetes, gastrointestinal tolerance and safety); organoleptic properties (sweetening power and synergistic effects with **maltitol** syrup); physicochemical properties (sintering/melting range, b.p., solubility, specific heat capacity, viscosity of solution and melt, low hygroscopicity and physicochemical resistance); applications; hard candy **production** (basic formulation, **production** process, **preparation** of stock solution, pipe lines and buffer tank, cooking, vacuum treatment, discharging, additives, cooling/plasticizing, batch roller/stamping, cooling of stamped confectionery and storing/packaging); hard candy types (centre filled, speciality stamped hard candies, and moulded and pharmaceutical hard candies); shelf life and storage properties; and regulatory considerations. (VAJ)

L14 ANSWER 13 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 96(04):K0008 FSTA FS FSTA

TI Polyols - the dynamic bulk sweeteners for sugarless chewing gum.

AU Anon.

SO Kennedy's Confection, (1995) 2 (9) 38-39.  
ISSN: 0007-8654.

DT Journal

LA English

AB Use of Roquette's range of polyols for **manufacture** of sugar free and non-cariogenic chewing gums is discussed; the range includes **maltitol**, xylitol, sorbitol and mannitol based sweeteners. Use of these sweeteners during the sweet liquid phase and the **crystalline** phase of **manufacture** is considered, along with the use of polyols to provide a crunchy coating for chewing gums. (TJR)

L14 ANSWER 14 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 94(11):L0033 FSTA FS FSTA

TI Method for **manufacturing** powdery **crystalline maltitol**.

AU Ueno, R.; Kanno, T.; Kunimi, Y.; Tabata, A.

CS KK Ueno Seiyaku Oyo Kenkyuio

SO United States Patent

PI US 5304388 1994

PRAI JP 92-60129 17 Mar. 1992 (KK Ueno Seiyaku Oyo Kenkyuio, Osaka, Japan)

DT Patent (Patent)

LA English

AB A method for converting maltitol into a crystalline powder using a simple procedure and in a very short time is described. Seed crystals of maltitol are added to an aqueous solution of maltitol with a moisture content of 1-15% by wt. A shearing force is applied continuously at a temp. lower than the m.p. of the seed crystals, and powdery maltitol crystals are obtained. [From En summ.] (HAS)

L14 ANSWER 15 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 95(02):K0018 FSTA FS FSTA

TI [Maltitol-based sweetening syrup and confectionery made with this syrup.]

AU Ribadeau-Dumas, G.; Fouache, C.; Serpelloni, M.

CS Roquette Freres SA

SO French Patent Application

PI FR 2701633 A1 1994

PRAI FR 93-01864 18 Feb. 1993

DT Patent (Patent)

LA French

AB A syrup for use in **manufacture** of sugar confectionery (especially boiled and semi-crystallized products) contains 78-95% **maltitol**, <5% hydrogenated monosaccharides of mol. wt. .gtoreq.182, and 3-19% of a constituent (mol. wt. >1300) for control of **crystallization** of **maltitol**. [See also preceding abstr.] (AJDW)

L14 ANSWER 16 OF 47 FSTA COPYRIGHT 1999 IFIS

AN 95(02):K0017 FSTA FS FSTA

TI [Sweetener syrup and confectionery made with it.]

AU Ribadeau-Dumas, G.; Fouache, C.; Serpelloni, M.

Searcher : Shears 308-4994

CS Roquette Freres SA  
 SO French Patent Application  
 PI FR 2701357 A1 1994  
 PRAI FR 93-01738 16 Feb. 1993  
 DT Patent (Patent)  
 LA French  
 AB A syrup for manufacture of sugar confectionery (especially boiled sugar products and semi-crystallized products) contains 80-95% maltitol. It contains <5% hydrogenated monosaccharides with mol. wt. .ltoreq.182, and 3-19% of a substance (mol. wt. >1300) inhibiting crystallization of maltitol. (AJDW)

L14 ANSWER 17 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 94(06):K0010 FSTA FS FSTA  
 TI Creating the perfect sugar-free chocolate.  
 AU Gonze, M.; Schueren, F. van der  
 CS Cerestar Eurofood Center, Belgium  
 SO Food Marketing & Technology, (1994) 8 (1) 25.  
 DT Journal  
 LA English  
 AB High purity maltitol crystal can be used to replace sugar in chocolate with a few changes in the manufacturing process. Use of maltitol in manufacture of sugar-free chocolate is briefly discussed with regard to: crystalline maltitol; refining and conching; and processing. (JMa)

L14 ANSWER 18 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 95(02):K0003 FSTA FS FSTA  
 TI Malbit CH - the ideal sweetener for sugar-free chocolate.  
 AU Rapaille, A.; Gonze, M.; Schueren, F. van der  
 CS Cerestar Euro Centre Food, Havenstraat 84, B-1800 Vilvoorde, Belgium  
 SO Agro Food Industry hi-tech, (1994) 5 (5) 12, 14-17, 3 ref.  
 DT Journal  
 LA English  
 AB A new sweetener for sugar-free chocolate has been developed called Malbit CH. It is a crystalline high purity maltitol which produces chocolate very similar to a sucrose-based product, but with a 12-15% reduction in calories. In 50:50 combination with low calorie bulking agents (polydextrose and/or inulin) calorie reduction may be increased up to 23%. Comparison of Malbit CH with polyol compositions in chocolate, and combination of Malbit CH and low calorie bulking agents are discussed, including adaptation of formulation and process parameters. (MMR)

L14 ANSWER 19 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 93(11):K0022 FSTA FS FSTA  
 Searcher : Shears 308-4994

TI Hard candies containing xylitol and other sugar alcohols having reduced tack.  
 AU Taskinen, S.  
 CS Huhtamaki Oy  
 SO United States Patent  
 PI US 5223303 1993  
 PRAI FI 90-5133 18 Oct. 1990 (Huhtamaki, Turku, Finland)  
 DT Patent (Patent)  
 LA English  
 AB **Crystalline** xylitol at carefully controlled temp. and in carefully monitored amounts is added to a melt containing xylitol and other sugar alcohols (e.g. **maltitol** and lactitol), and hydrogenated glucose syrup, to produce hard candies with low tack and good dimensional stability. [From En summ.] (LJW)

L14 ANSWER 20 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 94:84103 CABA  
 DN 940307176  
 TI Sugar substitutes  
 AU Newsome, R.; Altschul, A. M. [EDITOR]  
 CS Institute of Food Technologists, Chicago, IL 60601, USA.  
 SO Low-calorie foods handbook, (1993) pp. 139-170. 127 ref.  
 Publisher: Marcel Dekker, Inc. New York  
 ISBN: 0-8247-8812-5  
 CY United States  
 DT Book; Book Article  
 LA English  
 AB Sugar substitutes are reviewed, classified into those currently available in the USA, those in the process of development or regulatory review, and potential substitutes recently discovered or patented. Most in the 1st 2 groups are given 3 sections: Chemical properties and technical aspects, Applications and Safety and regulatory aspects. The 1st group comprises acesulfame-K, aspartame, saccharin, sugar alcohols (mannitol, sorbitol and xylitol) and other substitutes (**crystalline** fructose, glycyrrhizin and thaumatin). The 2nd group comprises alitame, cyclamate, hydrogenated starch hydrolysates, isomalt, lactitol, L-sugars, **maltitol**, sucralose and (very brief) neohesperidin dihydrochalcone(II) and stevioside. The last group, covered briefly under 'source/**manufacture**' and 'characteristics', comprises D-tagatose, dipeptide esters, 'Sweetener 2000', suosan-related (beta -substituted beta -amino acids) and erythritol. Blending of sugar substitutes is briefly considered.

L14 ANSWER 21 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 94:84197 CABA  
 DN 940307270  
 TI Bulking agents and fat substitutes  
 AU Frye, A. M.; Setser, C. S.; Altschul, A. M. [EDITOR]  
 Searcher : Shears 308-4994

CS Kansas State University, Manhattan, KS 66506, USA.  
 SO Low-calorie foods handbook, (1993) pp. 211-251. 139 ref.  
 Publisher: Marcel Dekker, Inc. New York  
 ISBN: 0-8247-8812-5  
 CY United States  
 DT Book; Book Article  
 LA English  
 AB Origins, properties and applications are considered for compounds grouped into polyalcohols (sorbitol, lactitol, isomalt, xylitol, **maltitol**, mannitol and Lycasin), carbohydrate polymers (Polydextrose types, sucrose polyesters, maltodextrins & starch derivatives, and fibres), emulsifiers, and other lipids and proteins (notably Simplesse(R)). Separate sections are devoted to physicochemical properties related to food function (Maillard browning and caramelization, **crystallization**, cooling effect, fermentation, hygroscopicity/flowability, melting, solubility and texturizing/bodying) and to applications (bakery **products**, with replacement of sugar and/or fat; beverages; confectionery; dairy **products**; fruit **products** including preserves and jellies; margarine and other spreads and dressings; meat **products**, gravy, sauces and condiments). The section on sucrose polyesters is very brief, because they are considered elsewhere in the book.

L14 ANSWER 22 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 94:84212 CABA  
 DN 940307285  
 TI The incredible bulk - starch derived sweeteners  
 AU Rapaille, A.; Cock, P. de; De Cock, P.  
 CS Cerestar Euro Centre Food, Vilvoorde, Belgium.  
 SO Confectionery Production, (1993) Vol. 59, No. 10, pp. 801-804. 10 ref.  
 ISSN: 0010-5473  
 DT Journal  
 LA English  
 AB Functional properties and applications (in confectionery and bakery **products**) of traditional and specialty bulk sweeteners are described. Low-DE starch hydrolysates are used to raise viscosity and prevent **crystallization**. High-DE hydrolysates (glucose syrups) impart sweetness, humectancy and osmotic pressure, raising the b.p. and lowering the f.p.; they also permit fermentation and browning. For particular applications (e.g. marshmallows and low-calorie soft drinks), 85 deg Bx glucose syrups containing from 9 to 20% fructose are available to give the desired sweetness, viscosity/texture and shelf-life. Excellent sugar-free confectionery can be made using appropriate polyols, e.g. **maltitol** in gums, hard candies and chocolate, sorbitol in tablets and coatings, sorbitol and xylitol in chewing gum.

L14 ANSWER 23 OF 47 CABA COPYRIGHT 1999 CABI

AN 93:128517 CABA

DN 930325486

TI Stability of procainamide hydrochloride syrups compounded from capsules

AU Alexander, K. S.; Pudipeddi, M.; Parker, G. A.; Madhusudhan Pudipeddi

CS Department of Pharmacy Practice, University of Toledo, Toledo, OH 43606, USA.

SO American Journal of Hospital Pharmacy, (1993) Vol. 50, No. 4, pp. 693-698. 8 ref.

ISSN: 0002-9289

DT Journal

LA English

AB Preparation of oral syrups based on either sucrose or Lycasin (75% maltitol syrup made by Roquette Corp.) from capsules containing a total of 50 g procainamide hydrochloride is described, and storage tests on these syrups (initial pH 5.0) are reported. The degradation rate constant  $k$  of the drug at 37 deg C was  $1.50 \times 10^{-3}$  in both syrups; over the range from 5 to 70 deg,  $k$  increased from  $6.91 \times 10^{-6}$  to  $1.34 \times 10^{-1}$  for the sucrose syrup and from  $6.50 \times 10^{-4}$  to  $2.58 \times 10^{-3}$  for the maltitol syrup. At 25 deg, 10% of the drug would be lost in 97 days with maltitol or 456 days with sucrose; at 5 deg, some sucrose crystallized out.

L14 ANSWER 24 OF 47 CABA COPYRIGHT 1999 CABI

AN 93:89423 CABA

DN 930323138

TI Spotlight on sweeteners

AU Gonze, M.; Schueren, F. van der; Simmonds, C.; Veld, R.; Van der Schueren, F.

SO Confectionery Production, (1993) Vol. 59, No. 7, pp. 523-526, 528-530, 532.

ISSN: 0010-5473

DT Journal

LA English

AB Several short articles are presented as an up-to-date overview on sweeteners: 'Polyol solutions for sugar-free confectionery' (pp. 523, 526), by M. Gonze and F. Van der Schueren of Cerestar Ltd., deals mainly with the use of various forms of maltitol in chewing gum, chocolate, hard and chewy candies, gums and compressed tablets. In 'Sugar is more than just a sweetener' (p. 524), C. Simmonds of British Sugar surveys several specialities and their applications in the confectionery industry: invert syrup, Select Granulated (with coarse and fine particles screened out), and Molasar brown sugars (4 grades). 'Sunett answers the prayers of chocaholics' (p. 525) notes the use of acesulfame-K (together with polyols or polydextrose) in sugar-free chocolate and

Searcher : Shears 308-4994

fruit gums. 'Facts about Lacty(R)' (p. 526) notes the properties and applications of lactitol as marketed by Purac Biochem bv. 'A new sweetener for sugar-free chocolate' (p. 528) summarizes the properties of Maltisorb(R), pure **crystalline maltitol** made by Roquette. 'Up-date on isomalt' (p. 529) discusses its market potential and the marketing policy adopted by Palatinit Sussungsmittel GmbH. 'New Nutrasweet categories [FDA] approved' (p. 530) are commercial baked goods, low-alcohol beers, hard and soft candies, and non-alcoholic beverages. 'Holland Sweetener Company profile' (p. 532) emphasizes the user-assistance offered by Europe's largest **manufacturer** of aspartame.

L14 ANSWER 25 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 93:75447 CABA  
 DN 930322906  
 TI Cerestar creating sugar-free chocolate  
 AU Gonze, M.; Schueren, F. van der; Van der Schueren, F.  
 CS Cerestar SA, Boite 13, 1050 Brussels, Belgium.  
 SO Confectionery Production, (1993) Vol. 59, No. 6, pp. 452-453.  
 ISSN: 0010-5473  
 DT Journal  
 LA English  
 AB **Producing** sugar-free chocolate with suitable taste, sweetness and melt behaviour remains a challenge. It is possible to use sorbitol, lactitol, isomalt, xylitol or polydextrose, but conching requires a long time at low temperature (e.g. <45 deg C for sorbitol), and any moisture absorption makes tempering more difficult; all but xylitol need intense sweetener to reach the sweetness level obtained using sucrose. Better than any of the above is **crystalline maltitol** (specifically Malbit CH), which is 90% as sweet as sucrose and gives chocolate with very similar taste, mouthfeel and processing behaviour. **Maltitol** chocolate can be conched at up to 80 deg and tempered at approx equal to 29 deg ; stability in storage is excellent.

L14 ANSWER 26 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 95:46182 CABA  
 DN 950303417  
 TI 1993 update on bulk sweeteners; polyols  
 AU Le Bot, Y.  
 CS Roquette Freres, 59022 Lille Cedex, France.  
 SO Food Ingredients Europe - Conference Proceedings 1993, Porte de Versailles, Paris, 4-6 October 1993, (1993) pp. 362-366. 2 tab., 6 fig.  
 Publisher: Expoconsult Publishers. Maarssen  
 Meeting Info.: Food Ingredients Europe - Conference Proceedings 1993, Porte de Versailles, Paris, 4-6 October 1993.  
 ISBN: 90-73220-12-2  
 CY Netherlands Antilles



DT Conference Article

LA English

AB Regulatory, scientific and technological developments with regard to bulk sweeteners in 1993 are surveyed. In the EEC, polyols were included in two proposals for Council directives: the directive on sweeteners and the directive on food additives other than colours and sweeteners. In the USA, the final rules on nutritional labelling were published in Jan.; points relating to the use of polyols, particularly in sugar-free products, are discussed. Recent data relating to nutrition and oral health are briefly discussed. In comparison with several other sugar alcohols, crystalline maltitol has technological properties close to those of sucrose; its commercial availability has led to new developments such as sugarless chocolate and maltitol hard coating.

L14 ANSWER 27 OF 47 AGRICOLA

AN 94:16650 AGRICOLA

DN IND20374602

TI Safety assessment of hydrogenated starch hydrolysates.

AU Modderman, J.P.

AV DNAL (RA1190.R42)

SO Regulatory toxicology and pharmacology, Aug 1993. Vol. 18, No. 1. p. 80-114

Publisher: Orlando, Fla. : Academic Press.

ISSN: 0273-2300

NTE Includes references

CY Florida; United States

DT Article

FS U.S. Imprints not USDA, Experiment or Extension

LA English

AB Hydrogenated starch hydrolysates (HSH) are mixtures of polyhydric alcohols such as sorbitol, maltitol, and higher-order sugar alcohols. They are important food ingredients because of their sweetness, low cariogenic potential, and useful functional properties. These traits permit HSH products to be used as viscosity or bodying agents, humectants, crystallization modifiers, and rehydration aids. A substantial body of safety information is available for HSH products and their individual chemical components. Based on this information, the substances have received favorable evaluations from international expert safety organizations such as the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and the European Community's Scientific Committee for Food. This same information has been submitted to the United States Food and Drug Administration (FDA) as part of the petitioning process to affirm the generally recognized as safe (GRAS) status of these substances. Some of the animal feeding studies important to a full safety assessment for HSH substances, while long available to international safety expert organizations and governmental organizations, have never been

Searcher : Shears 308-4994

published in the literature. Three of these studies, i.e., a chronic (24-month) feeding study, a multigeneration reproduction study, and a teratology study, are reported on in this article, together with metabolic information. The results of this evaluation establish HSH substances as safe food ingredients.

L14 ANSWER 28 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 94:53072 CABA  
 DN 940304168  
 TI Stable sugarless coating  
 AU Bot, Y. le; Le Bot, Y.  
 CS Roquette Freres, Lestrem, France.  
 SO Food Technology International, Europe, (1993) No. 1993, pp. 67-70. 1  
 tab., 2 fig.  
 ISSN: 0950-4435  
 DT Journal  
 LA English  
 AB The 3 main types of confectionery coating are: hard, consisting of successive layers of sucrose or glucose microcrystals formed by drying of syrup; soft, in which sucrose or glucose **crystals** are bound together by a saturated amorphous or partly **crystallized** liquid phase; chocolate. Notes are made about the properties and commercial origins of ingredients for sugarless coating: sorbitol, mannitol, xylitol, **maltitol** and Lycasin, and technology for their use in the 3 types of coating is discussed. Temperature-dependence graphs are included of (1) the solubilities of sucrose and polyols (sorbitol, mannitol, xylitol, **maltitol** and lactitol), and (2) the viscosity of saturated solutions of sucrose, sorbitol and xylitol (with increasing temperature, this decreases for sucrose but increases for polyols). Sorbitol (as the liquid Neosorb 70/02) is typically used for hard coating; soft coatings have been based on sorbitol powder + Lycasin syrup; **maltitol** and Lycasin 80/55 have advantages in chocolate coatings.

L14 ANSWER 29 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 93(03):L0031 FSTA FS FSTA  
 TI Shelf stable liquid xylitol compositions.  
 AU Pepper, T.; Keipinen, P.  
 SO United States Patent  
 PI US 5144024 1992  
 PRAI US 90-596064 11 Oct. 1990 (Pepper, Twickenham TW1 3EP, UK)  
 DT Patent (Patent)  
 LA English  
 AB A non-**crystallizing** liquid xylitol composition and its **preparation** are described. The composition has a dry solids content of 60-80%, comprising 50-90% xylitol and 10-50% non-xylitol monomeric or dimeric polyols (e.g. **maltitol**, sorbitol, mannitol and/or glycerol). Both the xylitol and a portion of the

Searcher : Shears 308-4994

non-xylitol components may be derived from run-off from a xylitol **crystallization** process. Non-xylitol components may also be derived from pure **crystalline** solutions or polyol syrups.  
(LJW)

L14 ANSWER 30 OF 47 FSTA COPYRIGHT 1999 IFIS  
AN 92(03):L0041 FSTA FS FSTA  
TI Hard candy containing xylitol and a process for the manufacture thereof.  
AU Oravainen, J.; Yli-Kyyny, M.  
CS Suomen Xyrofin Oy  
SO PCT International Patent Application  
PI WO 91/07100 A1 1991  
PRAI FI 89-5495 17 Nov. 1989 (Suomen Xyrofin, Helsinki, Finland)  
DT Patent (Patent)  
LA English  
AB The **production** and composition of a hard candy with a novel sweetening agent are described. The sweetener consists of 30-70% by wt. of xylitol, the remainder being 1 of sorbitol, **maltitol**, isomalt and lactitol. The candy, which can also contain a specified level of intensive sweeteners, is **manufactured** by melting 35-80% of the sweetener at 120-175.degree. C, cooling to 95-135.degree. C, adding remaining sweetener (as a **crystalline** or powdered solid) and other ingredients, and **forming** using recognized procedures.  
(LJW)

L14 ANSWER 31 OF 47 CABA COPYRIGHT 1999 CABI  
AN 91:87555 CABA  
DN 910305789  
TI Recycling of mother liquor of sorbose and glucose for hexitol production  
AU Nehete, P. N.; Shah, N. K.; Kothari, R. M.  
CS Industrial Fermentation Division, Sarabhai Research Centre, Baroda 390 007, India.  
SO Resources, Conservation and Recycling, (1991) Vol. 5, No. 1, pp. 81-87. 6 ref.  
ISSN: 0921-3449  
DT Journal  
LA English  
AB A possible method of utilizing sorbose mother liquor (SML, the viscous liquid remaining after recovery of 3 crops of **crystalline** sorbose) was tested. SML at 75 plus or minus 5 deg Bx, containing about 40% sorbose, was decolorized and clarified with HNO<sub>3</sub> (5%, added as 70%) at 90 deg C for 1 h, centrifuged, adjusted to pH 5.0, passed through Zeocarb 225 and R-48 ion-exchange columns, and vacuum-concentrated to 50% w/w reducing sugars. It was brought to pH 6.3 and hydrogenated at 160 deg , 103-124 kPa for 4 h with 100 g Raney nickel in a 3-litre pressure reactor. After removal  
Searcher : Shears 308-4994

of the nickel and further purification, 70% hexitol was obtained in 78% yield. According to GC, its solids comprised 68% sorbitol, 21% mannitol and 11% unidentified compounds. The same process, excluding HNO<sub>3</sub> treatment, was applied to hydrol (the liquid remaining after **crystallization** of 2 crops of dextrose monohydrate) at 72 plus or minus 2 deg Bx, containing 60 plus or minus 3% w/w reducing sugars. The 70% hexitol, obtained in 80% yield, comprised 70% sorbitol, 20% mannitol, 4% **maltitol** and 6% unidentified compound(s). When the starting material was a 50% solution of pure dextrose monohydrate, colourless 99%-pure sorbitol was obtained in 84% yield, suitable for conversion to sorbose by Acetobacter suboxydans. Hexitol from hydrol or SML is yellowish and would give only 50% conversion to sorbose, which is uneconomic. More appropriately, these hexitol **products** can replace the 70% pure sorbitol used in tobacco processing. With hexitol as a useful **by-product**, the economics of vitamin C **manufacture** improve.

L14 ANSWER 32 OF 47 CABA COPYRIGHT 1999 CABI

AN 93:75454 CABA

DN 930322985

TI Sorbitol and maltitol: Progress on property characteristics and application

AU Rapaille, A.; Gonze, M.

CS Cerestar, Gruppo Ferruzzi, Euro Centre Food, Brussels, Belgium.

SO (1991) pp. 43-47. Conference held Porte de Versailles, Paris, 8-10 October 1991.

Publisher: Expoconsult Publishers. Maarssen

Meeting Info.: Food Ingredients Europe - Conference Proceedings 1991.

ISBN: 90-73220-09-2

CY Netherlands Antilles

DT Conference Article

LA English

AB Catalytic hydrogenation converts glucose to sorbitol, and maltose to **maltitol**; improved processes for starch hydrolysis and chromatography permit **production** of starch hydrolysates having various carbohydrate composition, and hence a range of **maltitol** syrups and powders. **Maltitol** syrups (e.g. Malbit LQ, Maltidex 100 and Maltidex 200) are mainly used in sugarless confectionery, notably hard boiled sweets and gelled gums. In comparison with other polyols, high-purity **maltitol** powder (e.g. Malbit CH) has technological advantages in chocolate **manufacture** and gives better end-**product** quality; partial or total replacement of sucrose by Malbit CR improves the shelf-life of cakes. **Crystalline** sorbitol is particularly useful as an excipient in direct compression of (food or pharmaceutical) tablets. The **manufacturing** process of sorbitol influences its particle morphology and hence its

Searcher : Shears 308-4994

compressional behaviour (pressure/hardness and hardness/friability relations).

L14 ANSWER 33 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 89(06):V0162 FSTA FS FSTA  
 TI Anhydrous **crystals** of **maltitol** and the whole **crystalline** hydrogenated starch hydrolysate mixture solid containing the **crystals**, and process for the **production** and uses thereof.  
 AU Hirao, M.; Hijiya, H.; Miyaka, T.  
 CS KK Hayashibara Seibutsu Kagaku Kenkyujo  
 SO United States Patent  
 PI US 4789559 1988  
 PRAI US 87-089418 25 Aug. 1987 (Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan)  
 DT Patent  
 LA English  
 AB Anhydrous crystals of maltitol and crystalline mixture solid can be used as low calorie sweetener, e.g. for dietetic or health foods, in seasonings, or in a wide range of other foods. (HBr)

L14 ANSWER 34 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 88(07):V0081 FSTA FS FSTA  
 TI Anhydrous **crystals** of **maltitol** and whole **crystalline** hydrogenated starch hydrolyzate mixture solid containing the **crystals**, and process for the **production** and uses thereof.  
 AU Hirao, M.; Hijiya, H.; Miyaka, T.  
 CS KK Hayashibara Seibutsu Kagaku Kenkyujo  
 SO United States Patent  
 PI US 4717765 1988  
 PRAI JP 81-19512 12 Feb. 1981 (KK Hayashibara Seibutsu, Okayama, Japan)  
 DT Patent  
 LA English  
 AB **Maltitol** has a sweetness similar in quality to sucrose, has 75% greater sweetening power than sucrose, is hardly absorbable, hardly fermentable by oral microorganisms and is suitable for use in low calorie foods. However, it is very deliquescent and hygroscopic and difficult to **prepare** in solid form. The patent describes in detail a method of **preparing** anhydrous **maltitol** in the form of a powdered composition comprising 65% anhydrous **crystals** of **maltitol** with the remainder being sorbitol and higher sugar alcohols. (DMA)

L14 ANSWER 35 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 87(12):V0045 FSTA FS FSTA  
 TI Preparation of maltose and maltitol syrups.  
 AU Gibs, G. J.  
 CS Lonza Inc.

SO United States Patent  
 PI US 4675293 1987  
 PRAI US 84-640890 15 Aug. 1984 (Lonza, Fair Lawn, NJ, USA)  
 DT Patent  
 LA English  
 AB The aim is to produce bulk sweeteners exhibiting a combination of properties: sweetness; humectancy; non-cariogenicity; crystallization inhibition; and potential use for diabetics. A high maltose product is prepared from partially hydrolysed starch (DE of 5-30) (e.g. maltodextrin, waxy maize syrup or low conversion corn syrup) by further saccharification using .beta.-amylase, .alpha.-1,6-glucosidase and fungal .alpha.-amylase. An aqueous medium containing <45% solids, and incubated for 36-144 h at pH 5.0-5.5 and 45-55.degree. C is most effective. This process gives a high-maltose syrup containing 60-80% maltose, 12-24% glucose and 8-16% saccharides with a degree of polymerization of P3. The syrup can easily be hydrogenated to give sorbitol/maltitol mixtures. (DMA)

L14 ANSWER 36 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 87(12):L0021 FSTA FS FSTA  
 TI Biotechnology of maltose syrup production.  
 AU Saha, B. C.; Zeikus, J. G.  
 CS Michigan Biotech. Inst., Michigan State Univ., E. Lansing, Michigan 48824, USA  
 SO Process Biochemistry, (1987) 22 (3) 78-82, 57 ref.  
 DT General Review (Review)  
 LA English  
 AB Developments in industrial enzymology enabling large-scale production of maltose syrups for brewing, baking, soft drink, canning, confectionery and other food industries are reviewed. Types of maltose syrups produced, and their end-uses are described, enzymes used in production of maltose syrups are given, and the following topics are discussed: process of maltose production (liquefaction of starch, saccharification of liquefied starch to produce high maltose, extreme high maltose and high conversion syrups); immobilized enzymes in maltose syrup production; crystallization of maltose; and conversion products from maltose syrups (hydrogenated maltose syrups and maltitol, and production of maltulose). Most desirable future development is seen as production of cheap thermostable enzymes. (DIH)

L14 ANSWER 37 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 87(06):V0109 FSTA FS FSTA  
 TI [Pharmaceutical or confectionery product with crystalline non-sugar coating produced in dragee form, and method of manufacture.]

Searcher : Shears 308-4994

AU Boursier, B.  
 CS Roquette Freres SA  
 SO French Patent Application  
 PI FR 2580904 A1 1986  
 DT Patent  
 LA French

AB The **crystalline** coating comprises P90% (by wt.) **maltitol** and is made by applying a **maltitol** syrup containing >92% (preferably >96% in terms of DM) **maltitol** and 55-65% DM, at preferably 45-65.degree. C to a centre, e.g. sugarless chewing gum (quoted as example), sweets, crunchy centres or suitable pharmaceutical **products**. (HBr)

L14 ANSWER 38 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 85(12):L0048 FSTA FS FSTA  
 TI Malbit - **maltitol**. An alternative sweetener.  
 AU Celia, G.  
 SO Confectionery Manufacture and Marketing, (1985) 22 (5) 16, 25-26.  
 DT Journal  
 LA English  
 AB The composition, physicochemical properties, **production** and health effects of Malbit (mainly **maltitol**) are discussed. It is **produced** by enzymic hydrolysis of starch to a high maltose syrup which is hydrogenated to high **maltitol** syrup from which Malbit is **crystallized**. **Crystalline** Malbit contains 86-90% **maltitol** vs. 73-77% in Malbit liquid; other substances present include D -sorbitol, hydrogenated trisaccharide and hydrogenated higher polysaccharides. No health contraindications due to use of Malbit have been observed. Applications in the food industry are listed, i.e. chewing gums, chocolate, boiled sweets, pastilles, jellies, jams, ice-cream, bakery **products** and coated tablets.  
 (LJW)

L14 ANSWER 39 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 84(07):L0355 FSTA FS FSTA  
 TI Anhydrous **crystals** of **maltitol** and the whole **crystalline** hydrogenated starch hydrolysate mixture solid containing the **crystals**, and process for the **production** and uses thereof.  
 AU Hirao, M.; Hijiya, H.; Miyaka, T.  
 CS KK Hayashibara Seibutsu Kagaku Kenkyujo  
 SO United States Patent, US 4 408 041.  
 PI 1983  
 DT Patent  
 LA English  
 AB **Production** of anhydrous **crystals** of **maltitol**, and the whole **crystalline** hydrogenated starch hydrolysate mixture solid containing such **crystals**

Searcher : Shears 308-4994

is described. The **products** have various food applications, and examples include their incorporation into bakery **products**, confectionery, soup mix, and chewing gum. (RAW)

L14 ANSWER 40 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 83(11):T0685 FSTA FS FSTA  
 TI CMM visits Italy to investigate Malbit, a new sweetener.  
 AU Anon.  
 SO Confectionery Manufacture and Marketing, (1983) 20 (5) 27-28.  
 DT Journal  
 LA English  
 AB A new sweetener, 'Malbit', is described. It is available in liquid and **crystalline format**, with a sweetening power of approx. 90% that of sucrose, and is safe for diabetics, non-cariogenic, and contains 2 calories/g. There is no after-taste, as the primary component is **maltitol**, with maltotriol, sorbitol and higher polysaccharides (it is **manufactured** from a high maltose syrup, **produced** by catalytic hydrogenation followed by purification). (LH)

L14 ANSWER 41 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 83(11):L0799 FSTA FS FSTA  
 TI Crystalline anhydrous maltitol.  
 AU Miyake, T.; Hijiya, H.; Hirao, M.  
 CS KK Hayashibara Seibutsu Kagaku Kenkyujo  
 SO UK Patent Application, GB 2 097 004 A.  
 PI 1982  
 DT Patent  
 LA English  
 AB **Crystalline anhydrous maltitol (CAM)** of m.p. 146.5-147.0.degree. C, is prepared by (i) **crystallizing a maltitol solution**, and collecting the **crystals**, or (ii) **crystallizing a maltitol solution** and solidifying the resultant to a **crystalline solid**. The CAM may be used as a low-calorie sweetener, or to sweeten foods/beverages in general, eg. fondant, chocolate, pickles and dried beverage mix. (RAW)

L14 ANSWER 42 OF 47 FSTA COPYRIGHT 1999 IFIS  
 AN 74(04):L0263 FSTA FS FSTA  
 TI Starch as a source of sweeteners. The actual situation in the United States of America.  
 AU Whistler, R. L.  
 CS Dept. of Biochem., Purdue Univ., Lafayette, Indiana 47907, USA  
 SO Starke, (1973) 25 (12) 424-426.  
 DT Journal  
 LA English SL German; French  
 AB New developments in the commercial transformation of starch to sugar by low cost enzymatic reactions are discussed. An economic process

Searcher : Shears 308-4994



has been developed to hydrolyse starch slurry to D-glucose with glucoamylase, followed by conversion of glucose to a mixture of approx. equal parts of glucose and fructose with isomerase. A 50:50 mixture is 1.2 times as sweet as sucrose. Apart from isomerase-converted corn syrups, other sugars derived from starch such as corn syrups and sugars, **crystalline** dextrose, maltose, maltotriose and **maltitol** are important sweeteners. Maltose is a good food for yeasts, **maltitol** can be used in **products** requiring a non-reducing sweetener, both maltose and **maltitol** are more stable than sucrose in acid foods. Corn and sorghum can be grown in sugar cane locations to **produce** a crop every 6 months (vs. 18 months for sugar cane), while **producing** at least as much sugar as cane besides other nutrients. (RM)

L14 ANSWER 43 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 1998:1119 CABA  
 DN 970311518  
 TI Hard candies containing xylitol and other sugar alcohols having reduced tack  
 AU Taskinen, S.  
 CS Huhtamaki Oy.  
 PI 19930000  
 SO United States Patent, No. US 5223303, pp. 6. A 18.10.91-US-779476, P 29.06.93, PR 18.10.90-FI-905133; also: EP 481940; NO 91/4070.  
 DT Patent  
 LA English  
 AB **Crystalline** xylitol is added stepwise to a melt containing xylitol and other sugar alcohols such as **maltitol**, lactitol, isomalt and hydrogenated glucose syrup (+ up to 0.5% food emulsifier, e.g. glycerol monostearate). With careful control of temperature and the amounts of **crystalline** xylitol added to the molten mixture, hard candies with low tack and good dimensional stability can be **produced**. Typically the melt is preheated to 170-175 deg C and cooled to 110-120 deg before the 1st addition, followed by a 2nd addition at 92 deg and a 3rd at 45 deg, the final ratio of added xylitol to initial xylitol being (0.85-0.99):1.

L14 ANSWER 44 OF 47 CABA COPYRIGHT 1999 CABI  
 AN 95:102960 CABA  
 DN 950308991  
 TI Crystalline sugar alcohol containing uniformly dispersed liquid pharmaceutical compound  
 AU DuRoss, J. W.  
 CS ICI Americas Inc.  
 PI 19930000  
 SO United States Patent, No. US 5178850, pp. 5. A 15.06.90-US-538966, P 12.01.93, continuation-in-part of 30.06.88-US-213863.

Searcher : Shears 308-4994

09/160133

DT Patent; Journal

LA English

AB A pharmaceutical composition is claimed in which a **crystalline** sugar alcohol derived from at least one mono- or polysaccharide has at least one liquid pharmaceutically active compound uniformly dispersed within its **crystal** matrix. It is **produced** by controlled **crystallization** of the molten sugar alcohol having the pharmaceutically active material (e.g. dimethylisosorbide, Benadryl Exlair or NaF) dispersed therein. The sugar alcohol is preferably sorbitol, or sorbitol cocrystallized with 5-15% mannitol; it may also be xylitol, **maltitol**, lactitol, cellobiitol or hydrogenated starch hydrolysate. The composition is typically powdered and used in the form of tablets, toothpaste or chewing gum.

L14 ANSWER 45 OF 47 CABA COPYRIGHT 1999 CABI

AN 95:87800 CABA

DN 950307398

TI Shelf stable liquid xylitol compositions

AU Pepper, T.; Keipinen, P.

CS 38 Napoleon Road, St. Margarets, Twickenham TW1 3EP, UK.

PI 19920000

SO United States Patent, No. US 5144024, pp. 6. A 11.10.90-US-596064, P 01.09.92, also: WO 92/06943.

DT Patent

LA English

AB A shelf-stable liquid xylitol **product** contains 60-80% DM, which comprises 50-90 (60-80)% xylitol and 10-50 (20-40)% of other monomeric + dimeric polyols: 1-35% **maltitol**, 3-10% sorbitol, 0-1% mannitol, 0-4% galactitol, 0-4% arabinitol + rhamnitool, 0-5% higher polyols (DP 4 to 20+) and 0-10% other polyols, notably glycerol. It is derived by adding a suitable quantity (enough to prevent **crystallization**) of commercial **maltitol** syrup (e.g. Hystar, Lycasin, Maltisorb or Malbit) to the runoff syrup from 2nd masseuite in a 2-boiling process for obtaining **crystalline** xylitol from hydrogenated birch-wood hydrolysate. It may be useful in making toothpaste and cosmetics.

L14 ANSWER 46 OF 47 CABA COPYRIGHT 1999 CABI

AN 94:1846 CABA

DN 940300874

TI Sugar-free crust chocolates

AU Kruger, C.; Cappelman, K.; Cultor AG

CS Suomen Xyrofin Oy

PI 19910000

SO United States Patent, No. US 5063080, pp. 4. A 18.05-90-US-524879, P 05.11.91, PR 18.11.89-DE-3916189 and 02.12.89-DE-3939997, also: CA 2017161; DE-PS 3939997 (in name of Cultor AG); EP 398279; FI 90/2462; JP-A 03/117458; NO 90/2189.

Searcher : Shears 308-4994

09/160133

DT Patent  
LA English  
AB A composition for preparing a sugar-free confectionery crust comprises 42-71% polyol, 28-48% w/w water and/or aqueous ethanol, and 1-10% of a thickening agent for retarding gelatinization or crystallization; food acids or flavours may be included. The polyol is xylitol, sorbitol, mannitol, maltitol, lactitol, isomalt or some combination of these; the polyol:water ratio is (1.5-2.5):1, preferably 2:1. Suitable thickeners are gum arabic, agar-agar, pectin, maltitol syrup and combinations of these. The alcohol content of the aqueous ethanol is preferably 40-70 (60)% v/v.

L14 ANSWER 47 OF 47 CABA COPYRIGHT 1999 CABI  
AN 90:41100 CABA  
DN 900395318  
TI Anhydrous crystals of maltitol and the whole crystalline hydrogenated starch hydrolysate mixture solid containing the crystals, and process for the production and uses thereof  
AU Hirao, M.; Hijiya, H.; Miyaka, T.; KK Hayashibara Seibutsu Kagaku Kenkyujo  
CS Hayashibara Seibutsu Kagaku Kenkyujo KK; Hayashibara Seibutsu Kagaku Kenkyujo KK, Okayama, Japan.  
PI 19880000  
SO United States Patent, No. US 4 789 559, pp. 13. A 25.08.87-US-89418, P 06.12.88.  
DT Patent  
LA English  
AB Anhydrous crystals of maltitol, prepared from a solution of liquefied starch by a previously patented process [details given], are included in shaped bodies, e.g. tablets, and other edible compositions, which have no hygroscopic properties attributable to the maltitol.

=> d his l15- ful

(FILE 'REGISTRY' ENTERED AT 17:13:20 ON 04 MAR 1999)  
E MALTOTRIITOL/CN 5

L15 1 SEA ABB=ON PLU=ON MALTOTRIITOL/CN

FILE 'CAPLUS' ENTERED AT 17:13:34 ON 04 MAR 1999

L16 3 SEA ABB=ON PLU=ON L2 AND (L15 OR MALTOTRIITOL OR MALTO(W) (TRIITOL OR TRI ITOL) OR MALTOTRI ITOL)

L17 1 SEA ABB=ON PLU=ON L16 NOT (L6 OR L8)

=> d .bevstr

L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 1999 ACS  
Searcher : Shears 308-4994

09/160133

AN 1984:21778 CAPLUS  
DN 100:21778  
TI Production of hydrogenated maltosugar powder  
PA Nikken Chemicals Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 58158145	A2	19830920	JP 82-39326	19820315
	JP 01047140	B4	19891012		
AB	Hydrogenated malt sugar conc. is heated at 50-140.degree. and mixed with crystals of maltitol [585-88-6] and maltotriitol [32860-62-1]. When crystn. is completed, the mixt. is subjected to pulverization by conventional method to yield stable nonhygroscopic hydrogenated maltosugar powder which can be used as a sweetener having anticavity activity.				
IT	32860-62-1				
	RL: BIOL (Biological study) (sweetening agent prepn. from, with hydrogenated maltose)				

=> d his l18- ful

(FILE 'MEDLINE, BIOSIS, EMBASE, LIFESCI, BIOTECHDS, WPIDS, CONFSCI, JICST-EPLUS, PROMT, SCISEARCH, CBNB, CIN, CEN' ENTERED AT 17:14:46 ON 04 MAR 1999)

L18 3 SEA ABB=ON PLU=ON L4 AND (L15 OR MALTOTRIITOL OR  
MALTO(W) (TRIIITOL OR TRI ITOL) OR MALTOTRI ITOL)  
L19 0 SEA ABB=ON PLU=ON L18 NOT L9

(FILE 'FSTA, CABA, AGRICOLA' ENTERED AT 17:15:51 ON 04 MAR 1999)

L20 0 SEA ABB=ON PLU=ON L11 AND (L15 OR MALTOTRIITOL OR  
MALTO(W) (TRIIITOL OR TRI ITOL) OR MALTOTRI ITOL)

=> d his l21-

(FILE 'CAPLUS, MEDLINE, BIOSIS, EMBASE, LIFESCI, BIOTECHDS, WPIDS, CONFSCI, JICST-EPLUS, PROMT, SCISEARCH, CBNB, CIN, CEN, FSTA, CABA, AGRICOLA' ENTERED AT 17:16:35 ON 04 MAR 1999)

L21 221 S LELEU J?/AU  
L22 9 S HAON P?/AU  
L23 54 S DUFLLOT P?/AU  
L24 21 S LOOTEN P?/AU  
L25 0 S L21 AND L22 AND L23 AND L24  
L26 21 S L21 AND (L22 OR L23 OR L24)  
L27 0 S L22 AND (L23 OR L24)  
L28 0 S L23 AND L24

Author(s)

Searcher : Shears 308-4994

09/160133

L29 284 S L21 OR L22 OR L23 OR L24  
L30 3 S L29 AND L2  
L31 24 S L26 OR L30  
L32 11 DUP REM L31 (13 DUPLICATES REMOVED)

=> d 1-11 bib abs

L32 ANSWER 1 OF 11 CAPLUS COPYRIGHT 1999 ACS  
AN 1995:753399 CAPLUS  
DN 123:147192  
TI Preparation of non-crystallizing, viscose xylitol liquids  
IN Duflot, Pierrick; Caboche, Jean-Jacques  
PA Roquette Freres S. A., Fr.  
SO Fr. Demande, 27 pp.  
CODEN: FRXXBL

DT Patent  
LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2708269	A1	19950203	FR 93-9180	19930726
	FR 2708269	B1	19951006		
	WO 9502967	A1	19950202	WO 94-FR927	19940722
	W: AU, CA, FI, JP, NO, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2145411	AA	19950202	CA 94-2145411	19940722
	AU 9473470	A1	19950220	AU 94-73470	19940722
	AU 672330	B2	19960926		
	EP 661930	A1	19950712	EP 94-922300	19940722
	EP 661930	B1	19980916		
	R: AT, BE, CH, DE, DK, ES, GB, GR, IT, LI, LU, NL, SE				
	JP 08502418	T2	19960319	JP 94-504986	19940722
	AT 171044	E	19981015	AT 94-922300	19940722
	ES 2121605	T3	19981201	ES 94-922300	19940722
	NO 9501099	A	19950322	NO 95-1099	19950322
	FI 9501400	A	19950509	FI 95-1400	19950324
	US 5728225	A	19980317	US 96-766848	19961213
PRAI	FR 93-9180		19930726		
	WO 94-FR927		19940722		
	US 95-403820		19950314		

AB The title compns., contg. (based on dry wt.) xylitol 51-80, D-arabitol 0.1-44, and oligomers of non-reducing glucose polymers 5-48.9%, useful in cosmetic applications (e.g., tooth paste), pharmaceutical formulations, and confectionary products, are prep'd. in part by the redn. and/or saccharification of non-reducing glucose polymers.

L32 ANSWER 2 OF 11 LIFESCI COPYRIGHT 1999 CSA  
Searcher : Shears 308-4994

09/160133

AN 94:58546 LIFESCI  
TI Process for manufacturing xylose  
AU Leleu, J.-B.; Duflot, P.; Caboche, J.-J.  
CS Roquette Freres (France)  
SO (1993) . US Patent 5,238,826.  
DT Patent  
FS A  
LA English  
AB A process for the manufacture of D-xylose comprising, subjecting a syrup of D-glucose to aerobic fermentation by means of an osmophilic microorganism to convert the D-glucose to D-arabitol containing xylitol as an impurity.

L32 ANSWER 3 OF 11 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 1

AN 1991:490692 CAPLUS  
DN 115:90692  
TI Process for preparing xylitol and products rich in xylitol  
IN Leleu, Jean Bernard; Duflot, Pierrick; Caboche, Jean Jacques  
PA Roquette Freres S. A., Fr.  
SO Eur. Pat. Appl., 15 pp.  
CODEN: EPXXDW  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 421882	A2	19910410	EP 90-402754	19901004
	EP 421882	A3	19911113		
	EP 421882	B1	19941130		
	R: AT, BE, CH, DE, DK, ES, GB, IT, LI, NL, SE				
	FR 2652589	A1	19910405	FR 89-13003	19891004
	FR 2652589	B1	19950217		
	CA 2026810	AA	19910405	CA 90-2026810	19901003
	JP 03195491	A2	19910827	JP 90-265280	19901004
	BR 9004978	A	19910910	BR 90-4978	19901004
	US 5096820	A	19920317	US 90-592802	19901004
	ES 2064690	T3	19950201	ES 90-402754	19901004

PRAI FR 89-13003 19891004

AB Xylitol and xylitol syrups are prepd. from other sugars by a combination of microbial transformation of precursors with osmophilic yeasts, enzymic isomerization, and catalytic redn. A D-xylulose syrup (95% D-xylulose, 3% D-xylitol), prepd. from glucose via arabitol in a 2-stage fermn. process, was passed through a column of immobilized glucose isomerase to recover a syrup of 70% D-xylose, 25% D-xylulose. This syrup was then catalytically hydrogenated (Raney nickel catalyst) to yield a syrup of 85% xylitol, 13.5% D-arabitol from which the xylitol was recovered by crystn. (50% yield). The mother liquor was 45% D-arabitol, 52%

Searcher : Shears 308-4994

xylitol. The prepn. of the sugar from dextrose using *Pichia ohmeri* to convert the dextrose to arabinose is also described.

L32 ANSWER 4 OF 11 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 2  
 AN 1991:243973 CAPLUS  
 DN 114:243973  
 TI Exopolysaccharide structure from *Bacillus circulans*  
 AU Fontaine, Thierry; Wieruszeski, Jean Michel; Talmont, Frank; Saniez, Marie Helene; Duflot, Pierrick; Leleu, Jean Bernard; Fournet, Bernard  
 CS Lab. Chim. Biol., Univ. Sci. Tech. Lille Flandres-Artois, Villeneuve d'Ascq, F-59655, Fr.  
 SO Eur. J. Biochem. (1991), 196(1), 107-13  
 CODEN: EJBCAI; ISSN: 0014-2956  
 DT Journal  
 LA English  
 AB The exopolysaccharide harvested from the liq. culture medium after *B. circulans* fermm. consists of the hexasaccharide repeating unit.

L32 ANSWER 5 OF 11 SCISEARCH COPYRIGHT 1999 ISI (R)  
 AN 91:150207 SCISEARCH  
 GA The Genuine Article (R) Number: FB042  
 TI EXOPOLYSACCHARIDE STRUCTURE FROM BACILLUS-CIRCULANS  
 AU FONTAINE T (Reprint); WIERUSZESKI J M; TALMONT F; SANIEZ M H; DUFLLOT P; LELEU J B; FOURNET B  
 CS UNIV LILLE 1, CHIM BIOL LAB 111, CNRS, F-59655 VILLENEUVE DASCQ, FRANCE (Reprint); UNIV LILLE 1, UNITE MIXTE RECH, F-59655 VILLENEUVE DASCQ, FRANCE; ROQUETTE FRERES, LESTREM, FRANCE  
 CYA FRANCE  
 SO EUROPEAN JOURNAL OF BIOCHEMISTRY, (1991) Vol. 196, No. 1, pp. 105-113.  
 DT Article; Journal  
 FS LIFE  
 LA ENGLISH  
 REC Reference Count: 16  
 \*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*  
 AB The exopolysaccharide harvested from the liquid culture medium after *Bacillus circulans* fermentation consists of the following hexasaccharide repeating unit:  
 [GRAPHICS]

L32 ANSWER 6 OF 11 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 AN 90-378097 [51] WPIDS  
 DNC C90-164699  
 TI D-xylase prodn. from D-xylulose obtd. from D-glucose - by enzymatic isomerisation and chromatographic treatment.  
 DC D16 D17  
 IN CABOCHE, J J; DUFLLOT, P; LELEU, J B; CABOCHE, J; LELEU, J

Searcher : Shears 308-4994

PA (LELE-I) LELEU J B; (ROQF) ROQUETTE FRERES SA

CYC 19

PI EP 403392 A 901219 (9051)\*

R: AT BE CH DE ES GB IT LI NL SE

FR 2648474 A 901221 (9107)

CA 2019036 A 901216 (9111)

FI 9003009 A 901217 (9115)

JP 03067596 A 910322 (9118)

BR 9002828 A 910820 (9138)

US 5238826 A 930824 (9335) 10 pp

EP 403392 B1 940727 (9429) FR 15 pp

R: AT BE CH DE DK ES GB IT LI NL SE

DE 69010999 E 940901 (9434)

ES 2060976 T3 941201 (9504)

SU 1838418 A3 930830 (9520) 9 pp

IE 64306 B 950728 (9538)

FI 95576 B 951115 (9550)

ADT EP 403392 A EP 90-401661 900614; FR 2648474 A FR 89-8046 890616; JP 03067596 A JP 90-155609 900615; US 5238826 A US 90-537459 900614; EP 403392 B1 EP 90-401661 900614; DE 69010999 E DE 90-610999 900614, EP 90-401661 900614; ES 2060976 T3 EP 90-401661 900614; SU 1838418 A3 SU 90-4830590 900615; IE 64306 B IE 90-2172 900615; FI 95576 B FI 90-3009 900615

FDT DE 69010999 E Based on EP 403392; ES 2060976 T3 Based on EP 403392; FI 95576 B Previous Publ. FI 9003009

PRAI FR 89-8046 890616

AN 90-378097 [51] WPIDS

AB EP 403392 A UPAB: 930928

Prodn. of D-xylose comprises, (1) enzymatically isomerising a D-xylulose syrup to produce a mixt. of D-xylene and D-xylulose, (2) chromatographically treating the mixt. to give at least 2 fractions one contg. a large amt. of D-xylose (x, fraction) and the other to a large amt. of D-xylulose (X2 fraction) (3) recycling X2 to step (1) and (4) recovering D-xylose from x, and opt. subjecting the latter to hydrogenation.

ADVANTAGE - D-xylose is obtd. in high yield and purity, it is free from galactose and the xylitol formed by hydrogenation does not contain galactitol and can therefore be used in the food industry.

0/4

ABEQ US 5238826 A UPAB: 931119

D-xylose is mfd by aerobically fermenting corresp. syrup using an osmophilic microorganism to form D-arabitol and xylitol as an impurity.

Process then comprises (a) sterilising the fermentation broth obtd; (b) aerobically fermenting with microbial alcohol dehydrogenate to form D-xylulose syrup and subjecting this to enzymatic isomerisation at 40-80 deg.C at pH 6.0-8.5 to form a mixt of D-xylose and D-xylulose with arabitol and xylitol as impurities; (c) chromatographically fractionating to form a fraction enriched

Searcher : Shears 308-4994



with 50-95 wt.% D-xylose (fraction X1) and another enriched with 50-80 wt.% D-xylulose (fraction X2) as dry matter; (d) recycling X2 to isomerisation step; and (e) recovering D-xylose.

ADVANTAGE - High yields are obtd. on industrial scale.

Dwg.0/4

ABEQ EP 403392 B UPAB: 940907

Process for the manufacture of D-xylose characterized by the fact that: in a first step, a syrup of D-xylulose is subjected to enzymatic isomerization providing a mixture of D-xylose and D-xylose, in a second step, the above said mixture is subjected to chromatographic treatment leading to at least two fractions of which one is highly enriched in D-xylose (fraction X1) and of which the other is highly enriched in D-xylulose (fraction X2), in a third step, the fraction X2 is recycled to the isomerization step, the D-xylose being recovered from the fraction X1, the latter could also be subjected directly to a hydrogenation step.

Dwg.0/4

L32 ANSWER 7 OF 11 FSTA COPYRIGHT 1999 IFIS

AN 91(07):V0103 FSTA FS FSTA

TI [New process for preparation of xylose.]

AU Leleu, J. B.; Duflot, P.; Caboche, J. J.

CS Roquette Freres SA

SO French Patent Application

PI FR 2648474 A1 1990

PRAI FR 89-08046 16 Jun. 1989

DT Patent

LA French

AB A process for preparation of D -xylose is based on: fermentative preparation of D -xylulose from glucose; enzymic isomerization to yield a mixture of D -xylose and D -xylulose; separation of D -xylose by preparative chromatography; and recycling of the D -xylulose fraction to the isomerization process. The D -xylose may be used for hydrogenation to xylitol. (AJDW)

L32 ANSWER 8 OF 11 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 3

AN 1991:507271 CAPLUS

DN 115:107271

TI Site-directed mutagenesis applied to glucose isomerase from *Streptomyces violaceoniger* and *Streptomyces olivochromogenes*

AU Sicard, P. J.; Leleu, J. B.; Duflot, P.; Drocourt, D.; Martin, F.; Tiraby, G.; Petsko, G.; Glasfeld, A.

CS Roquette Freres, Lestrem, 62136, Fr.

SO Ann. N. Y. Acad. Sci. (1990), 613(Enzyme Eng. 10), 371-5

CODEN: ANYAA9; ISSN: 0077-8923

DT Journal

LA English

AB To improve the catalytic efficiency of the enzyme and its operational stability, 2 approaches have been taken: the first

Searcher : Shears 308-4994

09/160133

consisted of a site-directed mutagenesis of a residue essential for thermostability, whereas the other consisted of a modification of the whole protein through gene manipulation in *Escherichia coli*.

L32 ANSWER 9 OF 11 LIFESCI COPYRIGHT 1999 CSA  
AN 90:102254 LIFESCI  
TI Site-directed mutagenesis applied to glucose isomerase from *Streptomyces violaceoniger* and *Streptomyces olivochromogenes*. ENZYME ENGINEERING 10.  
AU Sicard, P.J.; Leleu, J.-B.; Duflot, P.; Drocourt, D.; Martin, F.; Tiraby, G.; Petsko, G.; Glasfeld, A.; Okada, H. [editor]; et al. [editor]  
CS ROQUETTE Freres, 62136 Lestrem, France  
SO ANN. N.Y. ACAD. SCI., (1990) pp. 371-375.  
Meeting Info.: Tenth International Enzyme Engineering Conference. Kashikojima (Japan). 24-29 Sep 1989.  
ISBN: 0-89766-626-7.  
DT Book  
TC Conference  
FS J; A; W  
LA English  
AB Two xylose isomerases industrially used in France are produced from *Streptomyces olivochromogenes* ATCC 21713 and *Streptomyces violaceoniger* CBS 409-73. In order to improve the catalytic efficiency of the enzyme and its operational stability, two approaches have been taken: the first consisted of a site-directed mutagenesis of a residue essential for thermostability, whereas the other consisted of a modification of the whole protein through gene manipulation in *E. coli*.

L32 ANSWER 10 OF 11 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 4  
AN 1990:181869 CAPLUS  
DN 112:181869  
TI Adsorptive recovery of citric acid from fermentation liquors  
IN Duflot, Pierrick; Leleu, Jean Bernard  
PA Roquette Freres S. A., Fr.  
SO Eur. Pat. Appl., 9 pp.  
CODEN: EPXXDW  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 346196	A1	19891213	EP 89-401529	19890602
	EP 346196	B1	19930804		
	R: AT, BE, CH, DE, ES, GB, IT, LI, NL				
	FR 2632302	A1	19891208	FR 88-7505	19880606
	FR 2632302	B1	19910222		
	AT 92460	E	19930815	AT 89-401529	19890602

Searcher : Shears 308-4994

09/160133

ES 2042027	T3	19931201	ES 89-401529	19890602
US 5032686	A	19910706	US 89-361043	19890605
JP 02275835	A2	19901109	JP 89-142306	19890606
PRAI FR 88-7505		19880606		
EP 89-401529		19890602		

AB Citric acid (I) is recovered from I-contg. liquors by contacting the liquors with an anion exchanger resin to adsorb I, followed by treating the resin with a I elution solvent. A process schematic and I elution graphs are presented. This process easily removes mineral and org. impurities assocd. with I-contg. fermn. liquors.

L32 ANSWER 11 OF 11 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 5  
AN 1987:121743 CAPLUS  
DN 106:121743  
TI Process and installation for the production of **crystallized maltitol**  
IN Gouy, Pierre Antoine; Leleu, Jean Bernard  
PA Roquette Freres S. A., Fr.  
SO Eur. Pat. Appl., 9 pp.  
CODEN: EPXXDW  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 202165	A1	19861120	EP 86-401007	19860512
	EP 202165	B1	19890503		
	R: CH, DE, FR, IT, LI, NL				
	FR 2581999	A1	19861121	FR 85-7431	19850515
	FR 2581999	B1	19880812		
	JP 61268696	A2	19861128	JP 86-108739	19860514
	JP 07000630	B4	19950111		
PRAI	FR 85-7431		19850515		

AB Anhyd., **cryst. maltitol** is prepd. by passing **maltitol** syrups, contg. **maltitol crystals**, through a vertical or inclined **crystn.** zone, having a temp. gradient decreasing at 0.2-2.degree./h towards the bottom, from top to bottom. The syrup contains >80% **maltitol** and >65% solids, and is combined with 10-120% material recycled from **crystn.**, which is added at a site .apprx.1/3 of its length from the end of the **crystallizer**. The process gave a 46.7% yield of crystals, and a space-time yield of 0.213 ton/m3-day.

=> fil hom

FILE 'HOME' ENTERED AT 17:20:03 ON 04 MAR 1999

=> d his; d cost

Searcher : Shears 308-4994

L2 ANSWER 2 OF 3 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD  
 ACCESSION NUMBER: 96-499096 [50] WPIDS  
 DOC. NO. CPI: C96-155947  
 TITLE: Prodn. of **\*crystalline\*** **\*maltitol\*** from  
 maltose syrup - by hydrogenation, chromatography and  
 further processing.  
 DERWENT CLASS: B07 D13 D17 D21 E17  
 INVENTOR(S): KATAURA, K; KATO, K; MAGARA, M; ONUKI, Y; OSADA, Y;  
 TATENO, Y; YAMAZAKI, F  
 PATENT ASSIGNEE(S): (TOAG) TOWA CHEM IND CO LTD; (TOAG) TOWA KASEI KOGYO KK  
 COUNTRY COUNT: 7  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 741140	A1	961106	(9650)*	EN	16
R: DE FR GB IT NL					
AU 9651926	A	961114	(9702)		
JP 09019300	A	970121	(9713)		13
AU 694013	B	980709	(9838)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 741140	A1	EP 96-106725	960429
AU 9651926	A	AU 96-51926	960429
JP 09019300	A	JP 96-37074	960201
AU 694013	B	AU 96-51926	960429

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 694013	B Previous Publ.	AU 9651926

PRIORITY APPLN. INFO: JP 96-37074 960201; JP 95-131194 950502  
 AB EP 741140 A UPAB: 961211

Prodn. of **\*crystalline\*** **\*maltitol\*** and a  
**\*crystalline\*** **\*maltitol\*** -contg. mixt. comprises: (1)  
 catalytically hydrogenating a maltose syrup contg. 30-75 wt.% solids, of  
 which 81-90 wt.% is maltose; (2) chromatographing the resulting sugar  
 alcohol syrup on a column of cation-exchange resin to obtain a maltitol  
 syrup whose solids comprise 92-99.9 (pref. 94-99.9) wt.% maltitol; and

(3) either: (a) concentrating the maltitol syrup, **\*crystallising\*** part  
 of the conc. syrup in the presence of seed crystals to obtain  
**\*crystalline\*** **\*maltitol\***, and spray-drying or cooling and  
 kneading the rest of the conc. syrup in the presence of seed crystals to  
 obtain the **\*crystalline\*** **\*maltitol\*** -contg. mixt.; (b)  
 concentrating and **\*crystallising\*** part of the maltitol syrup,  
 sepg. **\*crystalline\*** **\*maltitol\*** from mother liquor, mixing  
 the mother liquor with the rest of the maltitol syrup, and concentrating  
 and spray-drying or cooling and kneading the mixt. in the presence of  
 seed crystals to obtain the **\*crystalline\*** **\*maltitol\*** -contg.  
 mixt.; or (c) concentrating and **\*crystallising\*** the maltitol  
 syrup, sepg. **\*crystalline\*** **\*maltitol\*** from mother liquor,  
 adding seed crystals to the mother liquor, and spray-drying or cooling  
 and

kneading the mother liquor to obtain the **\*crystalline\***

**\*maltitol\*** mtg. mixt.

USE - The prods. are useful as sweeteners and as components of food, pharmaceutical and cosmetic prods.

ADVANTAGE - High yields are obtd. when the method is used, using inexpensive starting materials.

Dwg.0/0